



EUROPEAN DOCTORIALES® 2011

Du 16 au 21 octobre
Von 16. bis 21. Oktober
From October 16th to 21st

Hôtel L'Ermitage
F- 88310 Ventron



European Doctoriales, 16.10-21.10

Contact list

GENERAL INFORMATION

When?

From October 16th to October 21st

Where?

Hôtel de l'Ermitage

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TRAVEL INFORMATION

By train

Next train stations:

Rémiremont (29km)

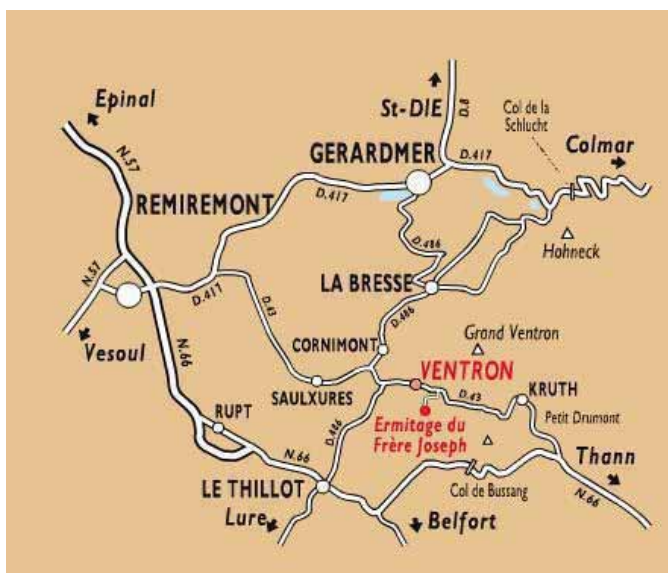
Kruth (15km)

By car

Metz – Nancy – Epinal – Rémiremont – Cornimont – Ventron

Taxi:

(+33) (0)3 29 24 07 04 or (+33) (0)9 63 62 91 12





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DU DIMANCHE 16 OCTOBRE
VON SONNTAG, 16. OKTOBER
FROM SUNDAY, OCTOBER 16TH

Accès au marché du travail en contexte interculturel et connaissance du secteur privé / Zugang zum Arbeitsmarkt im interkulturellen Kontext, mit der Wirtschaft vertraut werden / access to the job market in a multicultural context, knowing the private

Communiquer et faire partager ses connaissances / Kommunizieren und Wissen vermitteln / Communicating and disseminating knowledge

Innovate / Innovation / Innovating

Sunday 16.10	Monday 17.10 <i>Intervenants / Referenten / Speakers</i>	Tuesday 18.10
	▲ 08:00—08:30 [KINSMUSS] Présentation du projet innovant et de l'importance de l'innovation pour les entreprises Präsentation des innovativen Projektes und Bedeutung der Innovation im Unternehmen Presentation of innovating project and the importance of innovation in the companies <i>P.Truchot (INPL) P.Fleurentin (OSEO)</i> ▲ 08:30—09:15 [KINSMUSS] Techniques de recherche d'idées Techniken zum Ideengewitter Creativity techniques <i>B.Roussel (INPL)</i> ▲ 09:15—10:00 [KINSMUSS] Propriété intellectuelle et dépôt de brevet Geistiges Eigentum und Patentanmeldung Intellectual property and application for a patent <i>A.Koch (PVA Saarbrücken)</i> 10:00—10:15 pause / Pause / break ▲ 10:15—11:05 [KINSMUSS] Créer son entreprise et établir un business plan Existenzgründung und Erarbeitung eines Business Plans Starting a business and writing a business plan <i>H.Grünhagen (TU Kaiserslautern)</i> ▲ 11:10—12:00 [KINSMUSS] Gestion de projet innovant Management eines innovativen Projektes Innovative project management <i>S.Leflond (CEI Promotech)</i> 12:15—13:30 déjeuner / Mittagessen / lunch 16:30—16:45 Arrivée des bus / Café d'accueil Ankunft / Welcome coffee Bus arrival / Welcome coffee 16:45—18:00 Répartition dans les chambres Zimmerverteilung Room repartition 18:00—19:00 [KINSMUSS] Accueil officiel: présentation des European Doctoriales (objectifs, programme...) Offizieller Empfang: Präsentation der European Doctoriales (Ziele, programm...) Official start: European Doctoriales presentation (objectives, programm...) 19:00—20:30 dîner / Abendessen / dinner 20:30—23:00 Session posters Poster session Poster session	▲ 08:00—10:00 [KINSMUSS] Jeu de l'oeuf Golden Egg Golden Egg 10:00—10:15 pause / Pause / break ▲ 10:15—11:15 [KINSMUSS; BRUCHE] Présentation des entreprises: IEE, Heng Sieng, x47, PTP Industry Firmenpräsentation: IEE, Heng Sieng, x47, PTP Industry Companies presentation: IEE, Heng Sieng, x47, PTP Industry ▲ 11:20—12:15 Projet innovant 1: identifier et définir les défis, fixer des objectifs Innovatives Projekt 1: Herausforderungen identifizieren und bestimmen, Ziele setzen Innovative project 1: identify, define the challenge and set up objectives 12:15—13:30 déjeuner / Mittagessen / lunch ▲ 13:30—16:45 [KINSMUSS] Projet innovant 2: générer des idées créatives + veille Innovatives Projekt 2: Kreativität beweisen + Business Intelligence Innovative project 2: generate creative ideas + Business Intelligence ▲ 16:45—18:45 [KINSMUSS] Présentation et évaluation des idées Präsentation und Evaluation der Ideen Exposition and evaluation of ideas 19:00—20:30 dîner / Abendessen / dinner ▲ 20:45—23:00 Projet innovant 3: formuler un projet innovant et rédiger des entreprises Innovatives Projekt 3: innovatives Projekt schriftlich vorstellen Innovative project 3: formulate an innovative project and write companies

A U V E N D R E D I 2 1 O C T O B R E
B I S F R E I T A G , 2 1 . O K T O B E R
T O F R I D A Y , O C T O B E R 2 1 S T

Intervenants / Referenten / Speakers	Wednesday 19.10	Intervenants / Referenten / Speakers	Thursday 20.10	Intervenants / Referenten / Speakers	Friday 21.10
N. Bajwa and M. Brenker (KWT Saarbrücken)	▲ 08:00—12:15 Projet innovant 3 Innovatives Projekt 3 Innovative project 3 10:00—10:15 pause / Pause / break		★ 09:00—09:45 [KINSMUSS] Valorisation de la formation doctorale et projet professionnel: les questions à se poser avant de postuler Die Promotion als Mehrwert und Planung des beruflichen Projektes: welche Fragen muss man sich vor der Bewerbung stellen PhD as an added value & Career path planing: questions to ask yourself before applying for a job L. Theunis (doctorat.be) C. Gaudiero (CG Consulting)	09:30—11:00 [KINSMUSS] Evaluation Evaluation Evaluation	
J. Jouanique-Dubois (EE) F. François (Heng Sieng) P. Laguet (PTP Industry)	★ 09:50—10:35 [KINSMUSS] Réseaux de jeunes chercheurs Netzwerke für Nachwuchswissenschaftler Networking for PhDs 10:35—10:50 pause / Pause / break		L. Garattini (EURODOC)		
	★ 10:50—11:35 [KINSMUSS] Marché de l'emploi en Grande Région Arbeitsmarkt in der Großregion Job opportunities in the Greater Region		A. Dürschmid (EURES) R. Barth (KPMG Luxembourg)		
	★ 11:40—12:30 [KINSMUSS] Comment accroître son employabilité, présentation des résultats d'une enquête sur les docteurs et d'informations de la part de recruteurs par rapport aux compétences des docteurs Verstärkung der Arbeitsmarktfähigkeit, Präsentation der Ergebnisse einer Promoviertenumfrage, Informationen aus Arbeitgebern bezüglich Kompetenzen der Promovierten How to increase your employability, including details of outcomes of PhD surveys, information from recruiters regarding competences of PhD holders		A. Goodman (VITAE)		
	12:15—13:30 déjeuner / Mittagessen / lunch		12:30—13:30 déjeuner / Mittagessen / lunch	11:00—12:00 déjeuner / Mittagessen / lunch	
N. Bajwa and M. Brenker (KWT Saarbrücken)	▲ 13:30—14:30 [KINSMUSS] Comment commercialiser et promouvoir le produit/service—présentation des idées Vermarktung des Produktes/der Dienstleistung—Präsentation der Ideen How to market, advertise and promote your product/service—staging your ideas	N. Bajwa and M. Brenker (KWT Saarbrücken)	★ 13:30—18:00 Ateliers / Workshops / Workshops [RIANT; FORGOUTTE; ROCHELOTTE; KINSMUSS] Recherche d'emploi via les réseaux Jobsuche mit Netzwerken Job search through networks Candidature dans les pays de la Grande Région Bewerbung in den Ländern der Großregion Job application in the countries of the Greater Region Elevator speech Elevator speech Elevator speech Développement professionnel: identification des choix de carrière et évaluation des compétences Karriere und Kompetenzentwicklung: Identifizierung der Karrierewege und Selbst-Evaluation der Kompetenzen Career and skills planning: identification of career aspirations and skills assessment S. Pellegrin (ABG) L. Garattini (Eurodoc) A. Dürschmid (EURES) R. Barth (KPMG) C. Gaudiero (CG Consulting) A. Goodman (VITAE)	12:00 Départ Abfahrt Departure	
N. Bajwa and M. Brenker (KWT Saarbrücken)	▲ 14:30—16:30 [KINSMUSS] Stratégie marketing Marketing-Strategie Marketing strategy 16:30—16:45 break ▲ 16:45—17:45 Fin du projet innovant et remise du dossier à l'accueil Ende der Erarbeitung des innovativen Projektes und Übergabe der Unterlagen am Empfang Innovative project end and handing-over of the project	N. Bajwa and M. Brenker (KWT Saarbrücken)			
	▲ 18:00—18:50 Présentation en groupe des projets innovants Gruppenpräsentation der innovativen Projekte Group presentation				
	19:00—20:30 dîner / Abendessen / dinner		20:00 Dîner de gala et remise des prix Gala-Abendessen und Preisverleihung Gala dinner and awards		
propositions aux n und Lösungen e assignments to the	▲ 20:30—23:00 Présentation en groupe des projets innovants Gruppenpräsentation der innovativen Projekte Group presentation				

PROGRAMME

PROGRAMM

PROGRAMME

MOT DE BIENVENUE
BEGRÜSSUNGSWORT
WELCOME WORD

Prof. Dr. Helmut J. Schmidt

Président du Conseil du projet « Université de la Grande Région » / Ratsvorsitzender des Projektes „Universität der Großregion“ / President of the Board of the project „University of the Greater Region“



Un des objectifs majeurs de l'Université de la Grande Région est de mettre en place des formations doctorales transfrontalières et de soutenir la recherche. Le concept des *European Doctoriales®* nous permet d'aller encore plus loin et nous sommes ravis d'avoir à nos côtés des partenaires engagés et expérimentés que sont l'Université franco-allemande, l'ABG-Intelli'Agence et le Fonds National de la Recherche du Luxembourg.

Cette manifestation offre aux jeunes chercheurs une occasion formidable de voir au delà de leur domaine d'expertise, d'aller chercher de l'inspiration grâce aux expériences interculturelles, de développer leurs compétences transversales et aussi de les amener à réfléchir sur eux-mêmes et sur leurs propres compétences dans un contexte reflétant fidèlement les exigences du marché de l'emploi actuel. La composition internationale des participants et des intervenants ainsi que l'organisation dans un lieu isolé des Vosges promettent des échanges approfondis, un travail intensif et une mise en réseau portée vers l'avenir. Nous vous souhaitons de passer une semaine fructueuse tant sur le plan personnel que professionnel avec les *European Doctoriales®*!

Eines der Hauptziele der Universität der Großregion ist die grenzüberschreitende Doktorandenausbildung und Unterstützung der Forschung. Das Konzept der *European Doctoriales®* erlaubt uns nun, neue Wege zu beschreiten. Wir freuen uns, dass uns mit der Deutsch-Französischen Hochschule, der ABG Intelli'agence sowie dem Fonds National de la Recherche Luxembourg engagierte und erfahrene Partner dabei begleiten.

Die Veranstaltung bietet jungen Forschern eine hervorragende Gelegenheit, über ihren fachlichen Tellerrand hinauszublicken, aus interkulturellen Erfahrungen Inspiration zu beziehen, ihre Soft Skills zu trainieren und gleichzeitig sich selbst und ihre Fähigkeiten im Kontext realistischer Herausforderungen des modernen Arbeitsmarktes zu reflektieren. Die internationale Zusammensetzung der Teilnehmer und Referenten sowie der Veranstaltungsort in der Abgeschiedenheit der Vogesen versprechen intensiven Austausch, fokussiertes Arbeiten und zukunftssträchtige Vernetzung. Wir wünschen Ihnen eine im Persönlichen wie im Beruflichen ertragreiche Woche mit den *European Doctoriales®*!

One of the main goals of the University of the Greater Region is cross-border doctoral studies. The *European Doctoriales®* concept allows us to break new ground. We are pleased to have the Franco-German University, ABG Intelli'agence and the National Research Fund Luxembourg as committed and experienced partners at our side.

The event offers young researchers an excellent opportunity to look beyond their specialist field, gain inspiration from intercultural experience, train their soft skills and, at the same time, reflect about themselves and their capabilities in the context of the realistic challenges of today's job market. The international combination of participants and speakers and the venue itself in the seclusion of the Vosges make for in-depth exchange, focused work and promising future networks. We wish you a productive week, both personally and professionally, with the *European Doctoriales®* !

Prof. Dr.-Ing. Otto Theodor Iancu

Président de l'Université Franco-allemande / Präsident der Deutsch-französischen Hochschule / President of the Franco-German University



L'Université Franco-allemande (UFA) soutient depuis plus de 10 ans les jeunes chercheurs, pendant et après la thèse. Parce que justement la question de l'insertion professionnelle demeure une des priorités de l'UFA, nous avons décidé en partenariat avec l'ABG Intelli'Agence de créer une antenne chargée de mettre en place à destination des doctorants franco-allemands des formations et séminaires de même type que celui auquel vous participez aujourd'hui. L'UFA est particulièrement fière de s'associer à l'Université de la Grande Région et au FNR afin de soutenir ce projet des *European Doctoriales®* répondant aux critères de qualité qui lui sont propres:

- l'excellence, assurée non seulement par l'implication de professionnels et d'entreprises tant au niveau de l'élaboration que de la réalisation du programme, mais également par la qualité du programme qui vous permettra entre autre d'élargir vos perspectives professionnelles et de mieux savoir vous valoriser sur le marché de l'emploi,

- la mobilité, vous permettant ainsi d'échanger avec d'autres doctorants issus d'universités étrangères et garantissant de surcroît une plus-value interculturelle au programme

- l'ouverture internationale représentée par des porteurs de projet européens, des intervenants et des participants issus des 4 pays participants

Cette semaine est pour vous une belle opportunité de vous mettre en situation professionnelle. Nous espérons que vous saurez en profiter pleinement et nous vous souhaitons de très belles *European Doctoriales®*!

Die Deutsch-französische Hochschule (DFH) unterstützt seit über 10 Jahren Nachwuchswissenschaftler während und nach ihrer Doktorarbeit. Weil die Frage nach der beruflichen Eingliederung für die UFA nach wie vor vorrangig ist, haben wir in Zusammenarbeit mit der ABG Intelli'Agence beschlossen, eine Außenstelle zu gründen, die Schulungen und Seminare für deutsch-französische Doktoranden anbieten soll, vergleichbar mit denjenigen, an denen Sie sich heute beteiligen. Die DFH ist ganz besonders stolz darauf, gemeinsam mit der Universität der Großregion und FNR das Projekt der *European Doctoriales®* zu unterstützen, welches spezifische Qualitätsansprüche erfüllt:

- Exzellenz, die nicht nur dadurch gestellt wird, dass professionelle Partner und Unternehmen in die Ausarbeitung und Umsetzung des Programms einbezogen werden, sondern auch durch die Qualität des Programms an sich, die es Ihnen unter anderem ermöglichen soll, Ihre beruflichen Chancen zu verbessern und sich auf dem Arbeitsmarkt besser zu positionieren;

- Mobilität, die Ihnen den Austausch mit anderen Doktoranden ausländischer Hochschulen ermöglicht und dem Programm zudem einen interkulturellen Mehrwert verleiht;

- internationale Öffnung, verkörpert durch die europäischen Projektträger, Referenten und Teilnehmer aus den 4 teilnehmenden Ländern;

Diese Woche ist für Sie eine hervorragende Gelegenheit, eine Situation aus dem Berufsalltag zu erleben und sich darin auszuprobieren. Wir hoffen, dass Sie diese umfassend nutzen und wünschen Ihnen viel Erfolg bei den *European Doctoriales®*!

For over ten years now, the Franco-German University (FGU) has been supporting young researchers during and after their thesis work. And precisely because the problem of career development remains a priority for the FGU, in partnership with ABG Intelli'Agence, we have decided to set up a unit whose role is to organise training courses and seminars of the type you are attending today, for Franco-German doctoral candidates. The FGU is particularly proud to join with the University of Greater Region and the FNR in supporting this *European Doctoriales®* project, which meets its own quality criteria:

- excellence, not only through the involvement of professionals and companies both in drawing up and in operating the programme, but also through the quality of the programme which will, among other things, enable you to broaden your professional outlook and be better able to show your qualities in the job market.

- mobility, which will enable exchange with other doctoral candidates from foreign universities, and in addition, ensure the programme has added intercultural value.

- international atmosphere, represented by people driving European projects, speakers, and participants from the four participating countries and elsewhere.

For you, this week is a wonderful chance to place yourself in a professional setting. We hope that you will take full advantage of it, and wish you excellent *European Doctoriales®*!

MOT DE BIENVENUE
BEGRÜSSUNGSWORT
WELCOME WORD

Prof. Dr. Martine Pretceille

Directrice de l'ABG Intelli'agence /
Geschäftsführerin der ABG Intelli'Agence /
Managing Director of ABG Intelli'Agence



Le doctorat est perçu par les acteurs économiques de manière différente selon les pays. Néanmoins, s'il y a un point sur lequel ils se rejoignent, c'est sur la capacité des docteurs à innover et conduire le changement.

En vous offrant la possibilité d'endosser le rôle d'innovateur ou de créateur d'entreprise, les Doctoriales® sont une bonne formule pour vous confronter à la réalité du monde de l'entreprise avec lequel vous avez peu de contacts. C'est aussi l'occasion pour des PME d'apprendre à vous connaître et de découvrir ce que vous êtes capables de leur apporter. En un mot, les Doctoriales® sont un lieu d'échange professionnel mais aussi interculturel.

Au cours de cette semaine, vous allez rencontrer des doctorants de nationalité différente, dont les projets de recherches sont variés mais pour lesquels des synergies peuvent se créer, des professionnels pour vous aider à préparer l'après-thèse et des entreprises à la recherche de solutions innovantes : voilà de quoi développer votre réseau car comme nous l'affirmons depuis quelques temps déjà, « l'avenir se cultive en réseau » !

L'ABG Intelli'Agence est ravie de soutenir cette initiative transfrontalière et vous souhaite de bonnes *European Doctoriales®* !

Die Promotion wird von den wirtschaftlichen Akteuren in jedem Land anders wahrgenommen. In einem sind sich allerdings alle einig, nämlich: der Fähigkeit der Doktoranden, Innovation zu fördern und Änderungen voran zu treiben.

Die Doctoriales® bieten Ihnen die Möglichkeit, als innovative Wegbereiter oder Unternehmensgründer aufzutreten und Sie mit der Realität der Geschäftswelt zu konfrontieren, mit der Sie kaum Kontakte haben. Außerdem sind sie eine gute Gelegenheit für kleine und mittelständische Unternehmen, Sie kennenzulernen und herauszufinden, was Sie ihnen bieten können. Kurzum: Die Doctoriales® sind ein Ort für den beruflichen, aber auch interkulturellen Austausch.

Im Laufe dieser Woche treffen Sie Doktoranden aus verschiedenen Ländern mit vielfältigen Forschungsprojekten, für welche Synergien geschaffen werden können. Außerdem haben Sie die Gelegenheit, Fachkräfte zu treffen, die Ihnen helfen, sich auf die Zeit nach der Promotion vorzubereiten, sowie Unternehmen, die auf der Suche nach innovativen Lösungen sind. So können Sie Ihr persönliches Netzwerk aufbauen, denn Sie wissen ja: „netzwerken für die Zukunft“!

ABG Intelli'Agence freut sich, diese grenzüberschreitende Initiative zu unterstützen, und wünscht Ihnen erfolgreiche *European Doctoriales®*!

Doctorates are seen by business in different ways depending on the country. Nevertheless, if there is one shared point of view, it is on the ability of doctors to innovate and lead change.

By giving you the possibility of adopting the role of innovator or business founder, the Doctoriales® are an excellent way to let you look at the realities of the business world, with which you may have little contact otherwise. It is also an opportunity for SMEs to get to know you and to find out what you can do for them. In a word, the Doctoriales® are a forum not only for professional but also for intercultural exchange.

During this week, you will meet doctoral candidates of different nationalities, whose research projects vary widely, but for which synergy may be generated, professionals who will help you prepare for your post-doc life, and companies looking for innovative solutions. Plenty of ways to develop your networks, since as we've been saying for some time now, "The future is built out of networks!"

ABG Intelli'Agence is delighted to support this cross-border initiative, and hopes you enjoy the *European Doctoriales®*!

Dr. Marc Schiltz

Secrétaire Général du Fonds National de la Recherche du Luxembourg /
Generalsekretär FNR Luxemburg/ Secretary General National Research Fund
Luxembourg



Chers participants,

Le Fonds National de la Recherche Luxembourg (FNR) est ravi d'être associé aux *European Doctoriales®* car la formation et le développement de chercheurs en début de carrière est l'une de ses principales priorités.

Les *European Doctoriales®* vous offrent l'opportunité d'acquérir un nombre de compétences qui constitueront un précieux atout pour votre future carrière, que vous choisissiez la recherche ou un autre parcours professionnel.

Le module « projet d'innovation » vous procure une formation active dans le déroulement d'un projet, du développement d'une idée novatrice jusqu'à la conceptualisation d'un plan d'affaires. Puisse cette formation inspirer bon nombre d'entre vous, de ne pas seulement vous concentrer sur les découvertes immédiates de votre thèse de doctorat, mais également de chercher davantage comment valoriser au final vos résultats de recherche dans un contexte commercial.

La journée des carrières constitue elle-aussi une très bonne opportunité afin de mieux prendre conscience de vos compétences et aptitudes mais également de collecter des informations quant aux divers parcours professionnels qui s'offrent aux titulaires d'un doctorat. Je souhaiterais souligner ici l'importance de débiter aussi tôt que possible une planification consciente de votre carrière.

Le caractère multiculturel et interdisciplinaire des *European Doctoriales®* constitue un terreau exceptionnel pour de nouvelles connaissances et l'échange d'expériences.

Je vous encourage dès lors à saisir cette opportunité et à découvrir les principes de base de l'entrepreneuriat, à améliorer vos compétences générales et bien entendu à y prendre du plaisir !

Puisse les *European Doctoriales®* bénéficier durablement à votre future carrière !

Sehr geehrte Teilnehmer,

Der Fonds National de la Recherche Luxembourg (FNR) freut sich sehr, Partner der *European Doctoriales®* zu sein, weil die Ausbildung und der Aufbau junger Forscher eine ihrer Hauptprioritäten ist.

Die *European Doctoriales®* bieten Ihnen die Möglichkeit, eine Reihe von Fertigkeiten zu erlangen, die ein wertvolles Plus für Ihre weitere berufliche Laufbahn sein werden, ganz gleich, ob Sie sie in der Forschung oder auf anderen Gebieten weiterverfolgen.

Durch das Modul „innovation project“ bekommen Sie einen praxisnahen Unterricht wie ein Projekt von der Entwicklung einer innovativen Idee bis zur eigenständigen Erarbeitung eines Business Plan abläuft. Wir möchten, dass das auf viele von Ihnen inspirierend wirkt, sich nicht nur auf die unmittelbaren Ergebnisse Ihrer Doktorarbeit zu konzentrieren, sondern auch den Versuch zu unternehmen Ihre Forschungsergebnisse in einem möglichen kommerziellen Kontext nutzbar zu machen.

Auf der anderen Seite stellt der Karrieretag eine sehr gute Gelegenheit für Sie dar, sich Ihrer Stärken und Fähigkeiten deutlicher bewusst zu werden und Informationen über die verschiedenen Karrieremöglichkeiten zu sammeln, die Promovierten offenstehen. Dabei möchte ich hervorheben, dass es sehr wichtig ist, so früh wie möglich während Ihrer Promotion mit der bewussten Planung Ihrer weiteren Laufbahn zu beginnen.

Der multikulturelle und interdisziplinäre Rahmen der *European Doctoriales®* ermöglicht Ihnen auf einzigartige Weise, neue Kontakte zu knüpfen und zu intensivieren sowie Erfahrungen auszutauschen und darauf aufzubauen.

Hiermit möchte ich Sie also ermutigen, diese Gelegenheit zu ergreifen und die Grundlegendes Unternehmertums zu lernen, Ihre Soft Skills zu verbessern und - nicht zuletzt – eine schöne Zeit zu verbringen.

Mögen die *European Doctoriales®* Ihnen einen dauerhaften Nutzen für Ihre zukünftige Berufslaufbahn bringen!

Dear participants!

The National Research Fund Luxembourg (FNR) is very pleased to be partner of the *European Doctoriales®* since training and development of early stage researchers is one of its main priorities.

The *European Doctoriales®* offer you the possibility to acquire a number of skills which will be a valuable asset for your future career, be it in research or in an alternative career path.

The “innovation project” module gives you hands-on training in the development of an innovative idea through the conceptualization of a business plan. May this be inspiring for many of you, not only to focus on the immediate findings of your PhD research work, but to seek further how to eventually valorise your research results in a business context.

The career day on the other hand is a very good opportunity for you to become more aware of your strengths and capabilities and to gather information about the different career path possibilities that are available to PhD graduates. I hereby would like to stress the importance of starting as early as possible in your PhD with a conscious planning of your career.

The multicultural and interdisciplinary setting of the *European Doctoriales®* provides a unique breeding ground for new acquaintances and for exchange of experiences.

So, I hereby encourage you to take this opportunity and to discover the essentials of entrepreneurship, to improve your soft skills and last but not least to enjoy yourself!

May the *European Doctoriales®* have a lasting benefit for your future career!

IL ÉTAIT UNE FOIS...

- * projet conçu par la Direction Générale de l'Armement et l'ABG
- * premières sessions en 1997
- * organisées par la plupart des universités françaises
- * éditions transfrontalières depuis 2007: franco-italiennes, franco-belges, franco-espagnoles

ES WAR EINMAL...

- * von der Direction Générale de l'Armement und ABG entwickelt
- * erste Tagungen im Jahre 1997
- * in den meisten französischen Hochschulen organisiert
- * grenzüberschreitende Tagungen seit 2007: Frankreich/Italien, Frankreich/Belgien, Frankreich/Spain

ONCE UPON A TIME...

- * concept created by Direction Générale de l'Armement and ABG
- * first editions in 1997
- * organised in most of French universities
- * cross-border editions since 2007: France/Italy, France/Belgium, France/Spain

A PROPOS DES DOCTORIALES®

ÜBER DIE DOCTORIALES®

ABOUT DOCTORIALES®

TEMOIGNAGES

Patrick TRUCHOT, intervenant Doctoriales® Lorraine: « Les Doctoriales® sont avant tout un espace de rencontres interdisciplinaires et interculturelles. Le projet d'innovation s'inscrit dans cette dynamique en stimulant la créativité individuelle et collective dans un cadre de travail en équipe et en projet sur des problématiques industrielles.

Par un apport méthodologique dans l'action, les doctorants sont, pour la plupart d'entre eux, confrontés pour la première fois à l'univers de l'innovation et ses règles spécifiques, parfois en opposition avec leurs pratiques de la recherche. Malgré cette déstabilisation, l'expérience nous montre à chaque édition, que les doctorants sont les premiers surpris par leurs capacités de travail en équipe, de création et de communication.

Nous sommes convaincus que l'élargissement des Doctoriales® à l'espace européen constitue une chance extraordinaire pour les doctorants comme pour les formateurs et nous attendons ce moment avec impatience. »

Participant algérien, Doctoriales® de Lorraine 2011: « N'ayant pas eu la chance de pouvoir participer aux Doctoriales® lors de ma première année de thèse, j'ai réussi à m'y inscrire lors de ma 2ème année! Aller à la rencontre d'entreprises m'a permis de comprendre leur fonctionnement et d'en apprendre davantage sur les possibilités de carrières offertes aux doctorants. On a ensuite continué avec le projet innovant et terminé la semaine par des formations professionnalisantes. Cette semaine à Ventron a été très enrichissante et m'a permis de rencontrer aussi bien des professionnels que d'autres doctorants avec lesquels je garde encore le contact. D'un point de vue professionnel, j'ai appris à monter un projet innovant à partir d'idées presque insignifiantes, à préparer un entretien de recrutement, à rédiger de manière efficace mon CV et ma lettre de motivation. D'un point de vue humain enfin, j'ai pu échanger avec des personnes très différentes. 34 nationalités étaient représentées pour cette session: c'est autant de richesses à tous les niveaux! »

ERFAHRUNGSBERICHTE

Patrick TRUCHOT, INPL Professor: „Die Doctoriales® sind in erster Linie ein Ort für interdisziplinäre und interkulturelle Begegnungen. Das Innovationsprojekt ist Bestandteil dieser Dynamik und regt die individuelle und kollektive Kreativität im Rahmen einer projektbezogenen Teamarbeit an, die sich mit industriellen Problemstellungen befasst.

Im Rahmen eines methodologischen Beitrags sind die meisten Doktoranden erstmals mit der Welt der Innovation und ihren spezifischen Vorgaben konfrontiert, die bisweilen im Widerspruch zu ihrer Forschungspraxis stehen. Trotz dieses Gegensatzes lehrt uns die Erfahrung bei jeder Veranstaltung, dass die Doktoranden die ersten sind, die über ihre Teamfähigkeit, ihre Kreativität und ihre Kommunikationsfähigkeit überrascht sind.

Wir sind davon überzeugt, dass die Ausweitung der Doctoriales® auf den europäischen Raum eine außerordentliche Chance für die Doktoranden genauso wie für die Coaches darstellt und wir warten ungeduldig auf diesen Moment. „

Algierischer Teilnehmer von den Doctoriales® Lorraine 2011: „Nachdem ich in meinem ersten Promotionsjahr nicht das Glück hatte, an den Doctoriales® teilnehmen zu können, gelang es mir im zweiten Jahr zugelassen zu werden! Die Begegnung mit Unternehmen ermöglichte es mir, zu verstehen, wie sie funktionieren und mehr über die Karrieremöglichkeiten zu erfahren, die Doktoranden geboten werden. Weiter ging es mit dem innovativen Projekt, und die Woche endete mit berufsvorbereitenden Schulungen. Diese Woche in Ventron war eine große Bereicherung für mich, da ich bei dieser Gelegenheit mit Fachkräften und mit anderen Doktoranden zusammentreffen konnte, mit denen ich nach wie vor in Kontakt stehe. In beruflicher Hinsicht lernte ich, wie man ein innovatives Projekt ausgehend von nahezu unbedeutenden Ideen entwickelt, ein Einstellungsgespräch vorbereitet, effizient seinen Lebenslauf und ein Bewerbungsschreiben verfasst. In zwischenmenschlicher Hinsicht konnte ich mich mit ganz unterschiedlichen Personen austauschen. 34 Nationalitäten waren bei dieser Veranstaltung vertreten! In jeder Hinsicht eine Bereicherung! „

TESTIMONIALS

Patrick TRUCHOT, INPL professor: "Above all, the Doctoriales® are a venue for interdisciplinary and intercultural meetings. The innovation project fits into this dynamic structure by stimulating individual and collective creativity in a context of working in teams and project groups on industrial problems.

Through the methodological input to the action, most of the doctoral candidates are brought face to face for the first time with the realm of innovation, with its specific rules, some of them directly opposed to their research practices. Despite this jolt, every year experience has shown us that the doctoral candidates are the people most surprised by their own abilities to work in teams, to create, and to communicate.

We are convinced that extending the Doctoriales® at the European area gives an extraordinary opportunity for doctoral candidates and instructors alike, and we are looking forward impatiently to this event. "

Algerian participant from Doctoriales® Lorraine 2011: "Not having had the chance to participate in the Doctoriales® during my first year of thesis work, I've managed to register for them during my second year! Going to meet companies helped me understand the way they operate, and to learn more about the career opportunities open to doctoral candidates. We then continued with the innovation project, and finished the week with careers preparation courses. This week in Ventron was very informative and helped me meet not only business people but also other doctoral candidates, with whom I'm still in touch. From a professional point of view, I learned how to start up an innovative project from virtually insignificant ideas, to prepare for a job interview, and to write my CV and covering letters effectively. Finally, from a human viewpoint, I was able to talk to very different people. 34 nationalities were represented at that session—such a wealth of culture at every level! „

DANS LES COULISSES...

HINTER DEN KULISSEN...

IN THE BACKGROUND...

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Université de la Grande Région

EN CHIFFRES

- 7 universités partenaires: Sarrebruck, Liège, Luxembourg, Metz, Nancy, Kaiserslautern, Trèves
- 115.000 étudiants
- 6 domaines clés pour un groupement universitaire fort: gouvernance, mobilité, vie étudiante et enseignement, recherche, marketing, international

IN ZAHLEN

- 7 Partnerhochschulen: Saarbrücken, Lüttich, Luxemburg, Metz, Nancy, Kaiserslautern, Trier
- 115.000 Studierende
- 6 Schlüsselbereiche für einen starken Hochschulverbund: Governance, Mobilität, Studium und Lehre, Forschung, Marketing, International

KEY FIGURES

- 7 partner universities: Saarbrücken, Liège, Luxembourg, Metz, Nancy, Kaiserslautern, Trier
- 115.000 students
- 6 key areas for a strong university network: governance, mobility, studies and teaching, research, marketing, international

www.uni-gr.eu

LES ORGANISATEURS

VERANSTALTER

ORGANISERS



Université de la Grande Région

Universität der Großregion

University of the Greater Region

Le projet *Université de la Grande Région*, cofinancé sur les fonds FEDER dans le cadre du programme Interreg IVA Grande Région jusqu'avril 2012, a pour vocation la mise en place d'un réseau universitaire transfrontalier regroupant les universités de Kaiserslautern, Trèves et de la Sarre en Allemagne, Liège en Belgique, Metz et Nancy en France et du Luxembourg. L'objectif est de favoriser la mobilité des étudiants, (jeunes) chercheurs, enseignants entre les universités partenaires en créant des structures pérennes au niveau administratif et d'encourager les coopérations transfrontalières, notamment dans le domaine de la formation doctorale.

Ziel des Projektes *Universität der Großregion*, das von der EU im Rahmen des Förderprogramms Interreg IV A Großregion finanziert wird, ist der Aufbau eines grenzüberschreitenden Netzwerkes von Hochschulen, das die Universitäten von Kaiserslautern, Trier, des Saarlandes, von Lüttich, Metz, Nancy und Luxemburg umfasst. Das Projekt *Universität der Großregion* hat zum Ziel, die Mobilität der Studierenden und der Professoren und Forscher zwischen den Partnerhochschulen zu fördern. Dafür sollen dauerhafte Strukturen eingerichtet und Möglichkeiten der grenzüberschreitenden Zusammenarbeit verstärkt werden, so z.B. im Bereich der Doktorandenausbildung.

Over the next two years a cross-border association of universities will be created in these four countries as a result of the "University of the Greater Region" project, which is funded by the EU INTERREG Programme. It involves the universities of Saarland, Liège, Luxembourg, Metz, Nancy, Kaiserslautern and Trier. The partner universities have a total of around 115,000 students and around 6,000 teachers and researchers. Teaching and research is in German, French and Luxembourgish (the three national languages found in the Greater Region) as well as in English. A variety of faculties, institutes and labs in the key teaching and research departments are networked with each other via the "University of the Greater Region" project. The project thereby offers added value to all: students & lecturers, doctorate students and (young) researchers.



Université franco-allemande Deutsch-französische Hochschule Franco-German University

Créée en 1997 par l'accord intergouvernemental de Weimar, l'Université franco-allemande est constituée par un réseau d'établissements supérieurs français et allemands. Par son rôle d'expert dans les relations universitaires franco-allemandes, elle renforce la coopération entre les deux pays dans le domaine de l'enseignement supérieur et la recherche. L'UFA suscite, coordonne et finance des formations binationales tant au niveau licence et master que doctorat, permettant à ses étudiants et doctorants de bénéficier d'un programme de formation de qualité alliant complémentarité, interculturalité et plurilinguisme. Parmi les outils de soutien à la recherche franco-allemande : cotutelle, collège doctoral, école d'été, atelier et partenariat entre groupes de chercheurs.

Die Deutsch-französische Hochschule ist ein Netzwerk von französischen und deutschen Hochschulen, das 1997 durch das Weimarer Abkommen gegründet wurde. Durch ihre Rolle als Expertin im Bereich der deutsch-französischen Hochschulbeziehungen zielt die DFH darauf, die Zusammenarbeit zwischen den beiden Ländern im Hochschulwesen zu fördern. Mit ihren binationalen Studiengängen (Bachelor, Master, Promotion) ermöglicht die DFH den Studierenden und Doktoranden von hochwertigen Ausbildungsprogrammen zu profitieren, die Komplementarität, interkulturelle Kompetenzen und Mehrsprachigkeit verbinden. Zu den Forschungsförderungen der DFH zählen z.B. Cotutelles, Doktorandenkollegs, Sommerschulen, Workshops und Partnerschaften zwischen Forschergruppen.

The Franco-German University (FGU) consists of a group of affiliated member universities from France and Germany, the administration of which is located in Saarbrücken. It was established in 1997 as an institution under international law by means of an intergovernmental agreement (Weimar Agreement).

The FGU has adopted a specialist role in Franco-German university relations with the aim of reinforcing cooperation between France and Germany in the field of higher education and research. One of the fundamental tasks of the FGU is the initiation, coordination and financing of structured study programmes at all the development levels laid down in the Bologna process. Among its research supporting tools: thesis joint supervision, Franco-German doctoral colleges, summer schools, workshops and partnerships between researchers' teams.

UFA

EN CHIFFRES

- réseau de 180 établissements d'enseignement supérieur en France et en Allemagne
- 145 cursus bi- ou trinationaux
- 4.800 étudiants, 1.000 diplômés par an
- Soutien à la recherche: cotutelles, collèges doctoraux, ateliers, écoles d'été

IN ZAHLEN

- Netzwerk von 180 Hochschulen in Frankreich und Deutschland
- 145 binationale bzw. trinationale Studiengänge
- 4.800 Studierende, 1.000 Absolventen jährlich
- Forschungsförderung: Cotutelles, Doktorandenkollegs, Ateliers, Sommerschulen

KEY FIGURES

- network of 180 universities in France and Germany
- 145 binational or trinational study programmes
- 4.800 students, 1.000 graduates per year
- Research funds: thesis joint supervision, doctoral colleges, ateliers, summer schools

www.dfh-ufa.org

ABG Intelli'agence

EN CHIFFRES

- 3.500 offres d'emploi uniquement pour les docteurs
- 2.000 sujets de thèse
- 3.500 recruteurs dans le public et le privé
- 2.300 candidats
- 250 conseillers
- 1 antenne franco-allemande

IN ZAHLEN

- 3.500 Stellenangebote nur für Promovierte
- 2.000 Dissertationsthemen
- 3.500 Arbeitgeber im privaten und öffentlichen Bereich
- 2.300 Bewerber
- 250 Berater
- 1 deutsch-französische Außenstelle

KEY FIGURES

- 3.500 job offers only for doctorate holders
- 2.000 thesis topics
- 3.500 recruiters in both sectors (private/public)
- 2.300 candidates
- 250 counsellors
- 1 French-German branch office

www.intelliagence.fr

www.dfh-ufa.org/forschung/abg

LES ORGANISATEURS

VERANSTALTER

ORGANISERS



Association Bernard Gregory - Intelli'Agence

L'ABG-Intelligence : créée en 1980 sous le nom d'Association Bernard Gregory, cette association d'intérêt général a pour but d'encourager et soutenir le développement et le rayonnement de la culture scientifique en facilitant la formation, la professionnalisation et l'emploi des jeunes scientifiques dans les laboratoires, les institutions publiques et les entreprises, en France et à l'étranger. Différents services sont proposés pour promouvoir la mobilité professionnelle des docteurs : CV-thèque et offres d'emploi, formation de préparation au doctorat (AvanThèse) et à l'après-thèse (NCT, Doctoriales®), outils d'information (magazine, newsletter).

Der Verein wurde 1980 als Association Bernard Gregory gegründet. Ziel ist es, die wissenschaftliche Bildung durch die Ausbildung, die Professionalisierung und die Beschäftigung von Nachwuchswissenschaftlern in den Laboren, öffentlichen Einrichtungen und Unternehmen in Frankreich und im Ausland zu fördern. Verschiedene Dienstleistungen werden angeboten, um den Berufseinstieg von Promovierten zu fördern: Lebenslaufdatenbank und Stellenangebote für Promovierte, Seminare zur Vorbereitung auf die Promotion (AvanThèse) und auf den Berufseinstieg (NCT, Doctoriales®), Kommunikationsmittel (Zeitschrift, Newsletter).

The association was founded in 1980 as the Association Bernard Gregory. The aim is to promote scientific education by training, professionalising and employing young researchers in laboratories, public institutions and companies in France and abroad. Various services are offered to assist the career entry of those holding a PhD: CV database and job opportunities for doctorate holders, seminars to prepare for the doctorate (AvanThèse) and career planning (NCT, Doctoriales®), communication tools (journal, newsletter).



Fonds National de la Recherche Luxembourg FNR National Research Fund Luxembourg

Depuis 1999, le FNR a toujours soutenu le développement de la recherche au Luxembourg. C'est ainsi que de nombreux instruments financiers thématiques et structurels ont été mis en place afin d'accentuer la reconnaissance du Luxembourg comme un pôle de recherche en constant développement. Le FNR accorde entre autres des bourses AFR (Aides à La Formation Recherche) pour soutenir les chercheurs au moment de leur formation doctorale et postdoctorale. L'objectif principal du FNR est d'améliorer les conditions de travail et ouvrir les perspectives professionnelles des chercheurs en leur offrant des contrats de travail ainsi que des offres de formation et de mise en réseau pour les jeunes chercheurs.

Seit 1999 investiert der FNR konstant in die Verbesserung des Forschungsumfelds in Luxemburg. So wurden zahlreiche thematische und strukturelle Finanzierungsmaßnahmen entwickelt, die dazu beitragen, das Ansehen Luxemburgs als schnell wachsender Forschungsstandort zu fördern. Unter anderem vergibt der FNR die AFR Stipendien (Aides à la formation-recherche), um Doktoranden und Post-Doktoranden in ihrer Ausbildung zu unterstützen. Die Hauptzielsetzung der AFR ist es, die allgemeinen Arbeitsbedingungen und Karriereperspektiven der Forscher zu verbessern, indem jungen Forschern Arbeitsverträge sowie Weiterbildungs- und Vernetzungsmöglichkeiten geboten werden.

Since 1999, the FNR has constantly invested into the improvement of research in Luxembourg. Thus numerous thematic and structural funding instruments were developed which contribute to promote the reputation of Luxembourg as a rapidly growing research site. Among other things, the FNR awards the AFR grants (Aides à la formation-recherche) in order to support researchers in their doctoral and postdoctoral training. The main objective of the AFR is to improve the working conditions and career perspectives of researchers by offering work contracts as well as training and networking opportunities to young researchers.

FNR

EN CHIFFRES

- 235 projets financés par le FNR
- 1.914 mesures d'accompagnement: promotion de la culture scientifique, participation à des conférences scientifiques à l'étranger, organisation de conférences scientifiques au Luxembourg, publications scientifiques (y compris publications des thèses)
- 670 bourses doctorales et postdoctorales

IN ZAHLEN

- 235 vom FNR finanzierte Forschungsprojekte
- 1.914 Begleitmaßnahmen (Accompanying Measures): Förderung und Vermittlung der Wissenschaftskultur, aktive Teilnahme an wissenschaftlichen Konferenzen im Ausland, Organisation von wissenschaftlichen Konferenzen in Luxemburg, Zuschuss zu wissenschaftlichen Publikationen inklusive PhD Thesen
- 670 Doktorats- und Postdoktoratsstipendien

KEY FIGURES

- 235 FNR funded projects
- 1.914 accompanying measures: promotion of scientific culture, active participation of scientific conferences abroad, organisation of scientific conferences in Luxembourg, scientific publications including PhD theses
- 670 PhD and postdoc grants

www.fnr.lu



NOS PARTENAIRES

UNSERE PARTNER

OUR PARTNERS



www.doctorat.be

L'association **Objectif recherche - Focus research** est une association sans but lucratif fondée en 1987 pour la promotion de la recherche scientifique en Belgique. Cette association regroupe des scientifiques issus de différentes disciplines et de différentes institutions universitaires; elle organise des événements, publie un journal, et constitue des dossiers sur des questions de politique scientifique.

L'objectif est de fournir un ensemble d'informations utiles sur le doctorat ou le post-doctorat et s'adresse aux docteurs en recherche d'emploi ainsi qu'aux employeurs recrutant des docteurs. En outre, le site www.doctorat.be, diffuse les offres d'emploi dans les secteurs privés et publics ainsi que les offres de thèse et de post-doc. Les docteurs peuvent publier gratuitement leur CV et des services gratuits d'accompagnement (jobcoaching) sont proposés aux docteurs.

Parallèlement, l'association mène et collabore sur diverses actions et événements en lien avec la valorisation de la formation doctorale.

Der Verein **Objectif recherche - Focus research** ist ein gemeinnütziger Verein, der 1987 in Belgien zur Förderung der wissenschaftlichen Forschung gegründet wurde. Diesem Verband gehören Wissenschaftler aus unterschiedlichen Bereichen und von verschiedenen Hochschulen an. Er organisiert Veranstaltungen, veröffentlicht eine Zeitung und stellt Unterlagen zu Fragen der Wissenschaftspolitik zusammen.

Ziel ist es, nützliche Informationen für Doktoranden und Post-Doktoranden bereitzustellen. Zielgruppe sind Doktoranden auf Arbeitssuche sowie Arbeitgeber, die Doktoranden einstellen. Ferner veröffentlicht die Webseite www.doctorat.be Stellenangebote im privaten und öffentlichen Bereich, sowie Doktorandenstellen und Angebote für Post-Doktoranden. Doktoranden können kostenlos ihren Lebenslauf veröffentlichen und gebührenfreie Begleitmaßnahmen (Jobcoaching) nutzen.

Parallel dazu leitet der Verein verschiedene Initiativen und Veranstaltungen zum Thema Doktorandenausbildung und beteiligt sich daran.

EURES a pour vocation d'offrir des informations, des conseils et des services de recrutement/placement aux travailleurs et aux employeurs, ainsi qu'à tout citoyen désireux de tirer profit du principe de la libre circulation des personnes. EURES s'appuie sur un réseau humain de plus de 850 conseillers EURES répartis dans l'Europe toute entière et quotidiennement en contact avec des demandeurs d'emploi et des employeurs. Dans les régions européennes transfrontalières, EURES a un rôle important à jouer pour informer les personnes intéressées au sujet des problèmes liés aux déplacements domicile-travail transfrontaliers auxquels les travailleurs et les employeurs sont susceptibles d'être confrontés et pour apporter des solutions à ces problèmes. Fondé en 1993, EURES est un réseau de coopération entre la Commission européenne et les services publics de l'emploi des États membres de l'EEE (les pays de l'Union européenne plus la Norvège, l'Islande et le Liechtenstein) et d'autres organisations partenaires. La Suisse assume également une part importante dans la coopération au sein d'EURES. La mise en commun des ressources des organisations membres et partenaires d'EURES constitue une base solide, permettant au réseau EURES d'offrir des services de haute qualité aux travailleurs et aux employeurs.

Aufgabe des **EURES**-Netzes ist es, Informationen, Beratung und Vermittlung (Abstimmung von Stellenangeboten und Arbeitssuche) für Arbeitskräfte und Arbeitgeber sowie generell alle Bürger anzubieten, die vom Recht auf Freizügigkeit Gebrauch machen möchten. EURES hat derzeit ein Netz von mehr als 850 EURES-Beratern, die in täglichem Kontakt mit Arbeitssuchenden und Arbeitgebern in ganz Europa stehen. In europäischen Grenzregionen spielt EURES eine wichtige Rolle, insbesondere in Bezug auf die Vermittlung und Unterstützung bei der Lösung jeder Art von Problemen, die für Arbeitnehmer und Arbeitgeber im Zusammenhang mit grenzüberschreitenden Pendlerströmen entstehen können. EURES wurde im Jahr 1993 gegründet und ist ein Kooperationsnetz zwischen der Europäischen Kommission und den öffentlichen Arbeitsverwaltungen der EWR-Mitgliedstaaten (EU-Mitgliedstaaten plus Norwegen, Island und Liechtenstein) und anderen Partnerorganisationen. Auch die Schweiz wirkt an der EURES-Kooperation mit. Die gemeinsamen Ressourcen der EURES-Mitglieder und Partnerorganisationen bieten eine solide Grundlage für das EURES-Netz, um hohe Qualität der Dienste für Arbeitnehmer und Arbeitgeber zu sichern.

EURODOC is the European Council of Doctoral Candidates and Junior Researchers. It is an international federation of 34 national organisations of PhD candidates, and more generally of young researchers from 33 countries of the European Union and the Council of Europe. EURODOC's objectives are:

- to represent doctoral candidates and junior researchers at the European level in matters of education, research, and professional development of their careers.
- to advance the quality of doctoral programmes and the standards of research activity in Europe.
- to promote the circulation of information on issues regarding young researchers; organize events, take part in debates and assist in the elaboration of policies about Higher Education and Research in Europe.
- to establish and promote cooperation between national associations representing doctoral candidates and junior researchers within Europe.

EURODOC was founded in Girona (Spain) on 02/02/02. Since 2005, Eurodoc has its seat in Brussels, Belgium.

FLORENCE EXPERTISE CONSEIL is a consulting office specialised in management and finance. It was created in 2003 and is active in 3 segments:

- support of SME's development, investment, innovation and export projects,
 - companies evaluation as regards their organisation, financial situation or strategy,
 - financial performance improvement and management tools and processes optimisation
- It can support your innovation projects, from set-up to financing and implementation.



ec.europa.eu/eures



www.eurodoc.net



www.florex-conseil.com

KPMG is a global network of professional firms providing Audit, Tax and Advisory services. 138,000 outstanding professionals are working together to deliver value in 150 countries worldwide. As part of KPMG Europe LLP, KPMG Luxembourg S.à.r.l. is part of the largest integrated accounting firm in Europe. With more than 900 employees its approach to relationships and service delivery is designed to help clients exploit new opportunities, improve performance and manage risk. Every day, around the world, KPMG people play a vital role in helping organizations create value and grow with confidence. Stakeholders — from clients to investors, from governments to the public — have very high expectations of KPMG Luxembourg S.à.r.l. It responds by recruiting truly outstanding people, providing them with the quality of assignments, training, support and international opportunities they need to flourish professionally and personally.



www.kpmg.com/LU/en

kpmg.i-grasp.com/fe/tpl_kpmglux.asp?newms=hm

Le service de valorisation de l'Université des Saarlandes (KWT) et la Universität des Saarlandes Wissens- und Technologietransfer GmbH (WuT) initient et encadrent des coopérations entre l'université et les entreprises locales.

La KWT et la WuT sont des interlocuteurs pour:

- l'accès à des projets de recherche et des partenaires au niveau national et international
- le soutien à la création d'entreprise par la mise en place de conseils à l'entrepreneuriat et des formations qualifiantes
- la mise à disposition de bureau au sein de la pépinière (Sarrebuck et Homburg)
- l'aide à la participation à des salons
- la mise en place de salons et congrès

Die Kontaktstelle für Wissens- und Technologietransfer der Universität des Saarlandes (KWT) und die Universität des Saarlandes Wissens- und Technologietransfer (WuT) GmbH initiieren und betreuen Kooperationen zwischen der Universität und regionalen Unternehmen.

Die KWT und die WuT GmbH sind Ansprechpartner und Servicestelle für die:

- Vermittlung von nationalen und internationalen Forschungskontakten/-projekten
- Unterstützung bei der Existenzgründung durch Gründungsberatung und Qualifizierungsangebote
- Bereitstellung von Geschäftsräumen in den Starterzentren (Sarbrücken und Homburg)
- Unterstützung von Messebeteiligungen
- Durchführung von Messen & Kongresse



www.uni-saarland.de/info/wirtschaft/kwt.html

OSEO est une entreprise publique, sans équivalent en Europe, dont la mission répond à une ambition nationale de premier plan: contribuer à faire de la France un grand pays d'innovation et d'entrepreneurs. En quelques années, OSEO est devenu le bras armé de l'Etat en matière de financement de l'innovation et de la croissance des PME comme des entreprises de taille intermédiaire. L'action d'OSEO s'articule autour de trois métiers complémentaires, qui ont en commun d'aider les entrepreneurs à prendre des risques: le soutien de l'innovation, la garantie des financements bancaires et des interventions des organismes de fonds propres, le financement des investissements et du cycle d'exploitation aux côtés des établissements bancaires. OSEO est placé sous la tutelle du ministère de l'Economie, des Finances et de l'Industrie ainsi que du ministère de l'Enseignement supérieur et de la Recherche.



www.oseo.fr

OSEO ist ein in Europa einmaliges Unternehmen, dessen Auftrag einer vorrangig nationalen Zielsetzung Rechnung trägt: Frankreich will sich für Innovation und Unternehmer stark machen. Innerhalb weniger Jahre wurde OSEO zum Handlungsorgan des Staates im Bereich der Innovationsfinanzierung und des Wachstums von kleinen und mittelständischen Unternehmen. OSEO ist in drei sich ergänzenden Bereichen aktiv, deren Gemeinsamkeit darin besteht, Unternehmern bei der Übernahme von Risiken zu helfen: Unterstützung für Innovation, Bürgschaft für Bankfinanzierungen und für Interventionen der Kapitalgeber, Finanzierung von Investitionen und des Betriebszyklus an der Seite der Bankinstitute. OSEO untersteht dem französischen Wirtschafts-, Finanz- und Industrieministerium sowie dem Ministerium für Hochschulbildung und Forschung.

L'agence de valorisation des brevets des universités de Sarrebruck: de l'idée à la commercialisation.

L'agence des brevets (PVA) des universités de Sarrebruck est une activité de la Universität des Saarlandes Wissens- und Technologietransfer GmbH.

En tant que prestataire pour l'Université des Saarlandes et la Hochschule für Technik und Wirtschaft des Saarlandes, elle est chargée de la protection juridique et la commercialisation des résultats de recherche revêtant un enjeu économique obtenus par les universités. Elle vérifie que les innovations déclarées peuvent être brevetées et vérifie les chances de succès sur le marché. Elle offre aux universités sarroises son aide lors de la prise de décision concernant la liberté d'utilisation ou non des innovations.

Si l'université souhaite rester propriétaire de son innovation, les collaborateurs de PVA accompagnent l'inventeur tout le long du processus, de la contractualisation et protection juridique au respect du contrat, en passant par la définition d'une stratégie commerciale.



www.uni-saarland.de/info/wirtschaft/kwt/patente/pva.html

Die Patentverwertungsagentur der saarländischen Hochschulen: Von der IDEE zur VerMARKTung

Die Patentverwertungsagentur der saarländischen Hochschulen ist ein Geschäftsfeld der Universität des Saarlandes Wissens- und Technologietransfer GmbH (WuT GmbH).

Als Dienstleister für die Universität des Saarlandes und die Hochschule für Technik und Wirtschaft des Saarlandes übernimmt sie die schutzrechtliche Sicherung und Vermarktung wirtschaftlich relevanter Forschungsergebnisse aus den Hochschulen. Sie überprüft die gemeldeten Erfindungen auf ihre Patentfähigkeit und Marktchancen und bietet den saarländischen Hochschulen Hilfe bei deren Entscheidung über die Inanspruchnahme oder Freigabe an.

Nimmt die Hochschule eine Erfindung in Anspruch, so begleiten die Mitarbeiter der Patentverwertungsagentur in enger Kooperation mit dem Erfinder den gesamten Prozess von der Vertragsgestaltung und schutzrechtlichen Sicherung über die Erarbeitung von Vermarktungsstrategien bis hin zur Vertragsüberwachung.



NOS PARTENAIRES

UNSERE PARTNER

OUR PARTNERS



www.promotech.fr

To support entrepreneurs in Lorraine

Promotech CEI, "Centre Européen d'entreprise et d'Innovation", was created in 1985 and is now on the technopôle of Nancy Brabois (Nancy technopark). Promotech is a local tool to support economic development and works with local authorities like Conseil régional, Conseil général, Communauté Urbaine. Its primary mission is to support entrepreneurship and innovation to create new activities and innovative enterprises from the area of Nancy. After 30 years of activity, 571 enterprises have been created and 337 SMEs have been diversified through Promotech support and services. Main public is young entrepreneurs and it helps them in all first phases in business creation process. Today, the Promotech's offer supplies 3 services: Awareness, Coaching and Activities' support.

Awareness

The first help is the detection of business opportunity to a large public. For example, Promotech organizes training and conferences in universities to show business trends, brings business ideas and promotes desire to create his own start-up. An annual contest of entrepreneurship projects, "concours entreprendre" deliver an award of 30 000 € to help the development of business concept.

Coaching

The second Promotech offer contributes to coach the overall project steps: the company status, the registration, the accounting... It also helps with legal aspects as IPR (Intellectual Property Right) or regulatory legislation, and lastly checks with the project manager the project coherence, the business feasibility and initiatives to promote the project. The purpose is to facilitate market positioning to write the "Business Plan" and have persuasive presentation of the project to find funding. Promotech is a link to various local and national systems for fund raising and helps entrepreneur to apply and obtain money.

Activities support

The last facilitation provided by Promotech is accommodation by housing enterprises in the "pépinière" and offers services required to develop business as office, post address, phone, Internet, secretary, meeting room, etc, but also network.

Network & internationalization

At the international level, Promotech was certified as BIC, Business Innovation Center, by EBN, the European Business Network, a joint initiative of the European Commission now based in Bruxelles. This label brings possibility for entrepreneurs to have a quick access to other European BICs and facilitates the setting up of their business in other country. Promotech is also engaged in an innovative approach by being part of ENOLL (European Network of Living Labs).

User innovation community

Living Labs is an application of open innovation and a "user centric method". The main principle in business creation is to involve one group of users in the business development process. By associating users and entrepreneurs, start-ups creation is faster, safer and with a higher potential of growth. Users' contributions help entrepreneur to validate or refine the business concept, to suggest new idea or to test prototype. This new kind of partner boosts the project to be a success.



www.tigre-gr.eu

Le Projet **TIGRE** vise essentiellement le rapprochement concret entre l'offre issue des laboratoires de la recherche publique (démarche "Technology Push") et la demande de technologies nouvelles issue des petites, moyennes et grandes entreprises (démarche "Market Pull") au sein de la Grande Région. La stimulation des coopérations entre secteurs public et privé sera réalisée grâce à la mise en commun des expertises techniques propres et complémentaires des professionnels régionaux au travers de toutes les étapes de la valorisation de la recherche, gérées de manière transfrontalière.

Das Projekt **TIGRE** zielt im Wesentlichen auf die konkrete Annäherung zwischen dem Angebot der öffentlichen Forschungseinrichtungen (Initiative „Technology Push“) und der Nachfrage nach neuen Technologien ab, die von kleinen, mittelständischen und großen Unternehmen der Großregion ausgehen (Initiative „Market Pull“). Die Kooperation zwischen öffentlichem und privatem Bereich wird durch die Zusammenlegung des technischen Fachwissens der regionalen Fachkräfte mit dem Ziel einer effizienten grenzüberschreitenden Nutzung der Forschung angeregt.



www.vitae.ac.uk

Vitae is the UK organisation championing the personal, professional and career development of doctoral researchers and research staff in higher education institutions and research institutes. It plays a major role in the drive for high-level skills and innovation and in the UK's goal to produce world class researchers. Its vision is for the UK to be world-class in supporting the personal, professional and career development of researchers.

Vitae brings together all those with a stake in realising the potential of researchers. It will establish strategic partnerships between funders and national organisations to champion the needs and demonstrate the impact of researchers. The programme plays a key role in the UK drive for high-level skills and innovation in a globally competitive research environment. Vitae brings together experts, policy makers, employers and those working with researchers to develop policy and practice with a view to making real and positive change.

Vitae works with UK higher education institutions (HEIs) to embed professional and career development in the research environment. It plays a major role in innovating, sharing practice and enhancing the capability of the higher education sector to provide world-class professional development and training of researchers. The programme develops resources for use by trainers and other working with researchers, and provides opportunities for HEIs to share information and practice; develop ideas and approaches; and work collaboratively.

Vitae provides resources, advice, information and fora for individual postgraduate researchers and members of research staff who are interested in their professional development and careers.

Vitae works at the interfaces between researchers, the higher education sector and employers. It actively engages employers in the development of researchers. The programme will provide a channel for employers to have their voice and inform the development of policy and practice around how researcher training and development can most effectively meet the needs of employers into the future.

LES INTERVENANTS: QUI SONT-ILS?

REFERENTEN: WER SIND SIE?

SPEAKERS: WHO ARE THEY?

Rouven Bart: Degree in psychology from the University of Trier (03/2004).

As a Senior Coordinator Human Resources at KPMG Luxembourg Sàrl, his main tasks/missions are:

- recruitment specialist for graduates and experienced professionals for audit, tax, advisory and internal support functions
- HR branding, marketing, strategy
- realisation of business case competitions for international students and graduates
- HR KPIs and HR controlling
- creation of annual personnel reports
- visiting lecturer for Prof. Dr. C. Antoni, chair for industrial and organisational psychology at University of Trier
- job grading and grading of salaries for senior management level
- evaluation of assessment center

Further specialisations:

- proactive networking with professors and student organisations from exclusive European target universities
- campus recruiting specialist
- sourcing and selling specialist
- implementation of innovative recruitment channels and methods
- offering workshops: how to apply effectively and efficiently
- evaluation of assessment center: cost-benefit analysis, effectiveness analysis
- successful onboarding of newcomers

Responsable du service de culture scientifique et technique à l'Université de Lorraine, **Nicolas Beck** coordonne des actions de sensibilisation du grand public et des jeunes aux sciences et aux technologies, et assure des formations destinées aux étudiants et aux doctorants pour les initier à communiquer efficacement vers les autres.

Als Verantwortlicher für die Abteilung für die Vermittlung von Wissenschaft und Technik an den Hochschulen Lothringen koordiniert **Nicolas Beck** Initiativen, um in der Öffentlichkeit und bei der Jugend Interesse an Wissenschaft und Technologie zu wecken. Außerdem hält er Lehrgänge für Studenten und Doktoranden ab, um sie in die effiziente zwischenmenschliche Kommunikation einzuführen.

Nida Bajwa: Diploma in Psychology 2011— PhD candidate at the Saarland University, Germany
Thesis: Bridging the science-practitioner gap in Human Resource Management

Experience:

- cross-cultural analysis of motivation and organisational commitment in Indian and German IT companies
- field Research: Employee and customer satisfaction at microfinance institutions in India and Bangladesh
- communication analysis of the worldwide EFQM coordinators network at a leading German car part supplier
- conduction of various personnel development measures at various institutions at Saarland University



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LES INTERVENANTS: QUI SONT-ILS?

REFERENTEN: WER SIND SIE?

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Michael Brenker: PhD candidate at the Friedrich-Schiller-University Jena, Germany
Researcher in the field of Intercultural Business Communications - Diploma in Psychology (2011)

Experiences:

- conducting a survey of 2.000 employees at a leading international company of household appliances
- analysis of the antecedents and outcomes of commitment to change
- developing human resource programs
- conducting single and group assessments



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Achim Dürschmid est conseiller EURES auprès de l'Agence pour l'Emploi de Sarrebruck. Après des études en littérature comparée, il devient chef de projet chez America Online, IDS Scheer et la Chambre de Commerce Extérieur française. Depuis 2005, il conseille au niveau transfrontalier les employeurs pour leur recherche de candidats et les candidats pour leur recherche d'emploi. Une attention toute particulière est portée à l'employabilité.

Achim Dürschmid ist EURES-Berater bei der Agentur für Arbeit in Saarbrücken. Nach dem Komparatistikstudium war er Projektleiter bei America Online, IDS Scheer und der französischen AHK. Seit 2005 berät er Arbeitgeber bei der grenzübergreifenden Personalsuche und Bewerber bei der grenzüberschreitenden Stellensuche. Besonderes Augenmerk gilt der "Employability" der Arbeitssuchenden.



Philippe FLEURENTIN
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Après avoir passé un baccalauréat, série E, au lycée Henry Loritz de Nancy, **Philippe Fleurentin** fait toutes ses études à la faculté des sciences de Nancy jusqu'à l'obtention d'un DEA en sciences et génie des matériaux. Un laboratoire de recherche de l'Ecole des Mines de Nancy lui propose de le rejoindre pour la préparation d'un diplôme d'ingénieur puis d'une thèse dont le projet de recherche sera mené en collaboration avec la SNECMA.

Il crée un bureau d'ingénieurs-conseils avec deux amis dont il a été le gérant créateur pendant deux ans. En mai 2002, il occupe un poste de chargé d'affaires OSEO et en juillet 2007, il passe de l'activité bancaire d'OSEO vers l'activité innovation.

Son activité professionnelle, tout comme sa formation lui permettent de comprendre et de connaître parfaitement les cycles de vie des entreprises, leurs contraintes et leurs difficultés. Il est également engagé au niveau associatif et politique.

Nach seinem Abitur mit den Schwerpunkten Mathematik und Technik (*Baccalauréat Série E*) am Gymnasium Henry Loritz in Nancy, absolviert **Philippe Fleurentin** sein gesamtes Studium an der naturwissenschaftlichen Fakultät in Nancy bis er ein DEA-Abschluss im Bereich Materialwissenschaft und Werkstoffkunde erwirbt. Ein Forschungslabor der Ecole des Mines in Nancy bietet ihm die Möglichkeit ein Ingenieurabschluss und anschließend eine Dissertation vorzubereiten, wobei das Forschungsprojekt in Zusammenarbeit mit der SNECMA durchgeführt wird.

Mit zwei Freunden gründet er ein Ingenieurberatungsbüro und fungiert zwei Jahre lang als Gründungsgeschäftsführer. Im Mai 2002 übernimmt er eine Stelle als Bankwirt bei OSEO und im Juli 2007 verlässt er den Bankbereich für eine Tätigkeit im Bereich Innovation.

Seine berufliche Tätigkeit und ebenso seine Ausbildung ermöglichen es ihm, die Lebenszyklen von Unternehmen und auch ihre Zwänge und Schwierigkeiten zu verstehen und damit bestens vertraut zu sein. Darüber hinaus ist er politisch aktiv und in Vereinen engagiert.

Après un diplôme en gestion, **Holger Grünhagen** travaille comme consultant chez PricewaterhouseCoopers puis il exerce en Italie et en Allemagne le métier de consultant indépendant pendant trois ans. Il devient ensuite assistant dans le département de gestion de l'université de Kaiserslautern. Il mène en parallèle son master « finance internationale et entrepreneuriat » et réalise une publication dans le cadre d'un projet de recherche sur le thème de la gestion dans les PME. Il assume également depuis plusieurs années une fonction de chargé de cours dans différentes universités et travaille depuis 2009 dans le bureau d'aide à la création d'entreprise des universités de Kaiserslautern pour lequel il est chargé de mettre en place des formations professionnalisantes sur le thème « penser et agir comme entrepreneur » qui font partie intégrante ou non des cursus universitaires.

Holger Grünhagen hat nach Abschluss des Studiums der Betriebswirtschaftslehre als Unternehmensberater bei PricewaterhouseCoopers gearbeitet und anschließend als freiberuflicher Berater drei Jahre in Italien und später in Deutschland. Danach war Holger Grünhagen Assistent im Fachbereich Betriebswirtschaft der Fachhochschule Kaiserslautern, absolvierte ein Master-Studium in „International Finance & Entrepreneurship“ und publizierte im Rahmen eines Forschungsprojektes zum Thema Controlling im deutschen Mittelstand. Er doziert als Lehrbeauftragter an verschiedenen Fachhochschulen und Universitäten und arbeitet seit 2009 hauptberuflich im Gründungsbüro der TU & FH Kaiserslautern wobei er für die curricularen und außercurricularen Qualifizierungsangebote im Bereich „Unternehmerisches Denken und Handeln“ zuständig ist.

Après l'obtention d'un master en langues étrangères appliquées au commerce et à l'économie en 1999, **Carole Gaudiero** oriente sa carrière vers le recrutement en intégrant différents cabinets de recrutement luxembourgeois, jusqu'en janvier 2011 où elle devient consultante RH freelance.

A travers ses différentes étapes professionnelles, elle a pu acquérir des années d'expérience dans les domaines suivants: sourcing et recrutement, gestion des carrières et des talents, gestion de projet, assessment center, gestion d'équipe et coaching, projets RH (audit, amélioration des méthodes, gestion de l'absentéisme).

Nach dem Abschluss ihres Fremdsprachenstudiums mit dem Fachgebiet Handel und Wirtschaft im Jahr 1999 lenkt **Carole Gaudiero** ihre berufliche Laufbahn in Richtung Personalberatung und ist bis Januar 2011 für mehrere luxemburgische Consulting-Firmen tätig, bevor sie sich als Personalberaterin selbständig macht.

Im Laufe ihrer beruflichen Karriere erwarb sie eine mehrjährige Erfahrung in folgenden Bereichen: Sourcing und Einstellung, Karriere- und Nachwuchsmanagement, Projektmanagement, Assessment Center, Teamleitung und Coaching sowie Personalprojekte (Prüfung, Optimierung der Methoden, Verwaltung von Abwesenheiten).

Born in Cardiff, **Anne Goodman** attended Queen Mary College, London University where she read English. After a period teaching English as a foreign language, she began working in educational public relations—first for a professional accountancy body—the Chartered Institute of Management Accountants (CIMA) then as Public Relations Officer for the Business and Technician Education Council (BTEC – an organisation providing vocational training).

Returning to Cardiff to raise a family, she again worked for CIMA, as a Careers Development Officer working with undergraduates and Careers Services in universities in the South West and Wales area. She has been Hub Manager for the South West and Wales Hub of Vitae since February 2004. In parallel to these jobs, she has been writing for many years on careers issues for publishers such as the Association of Graduate Careers Advisors (AGCAS) for the Graduate Prospects website and Hobsons, and has undertaken various careers related projects for universities.



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LES INTERVENANTS: QUI SONT-ILS?

REFERENTEN: WER SIND SIE?

SPEAKERS: WHO ARE THEY?



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Diplômé en études de commerce, **Axel Koch** travaille pour la WuT GmbH depuis huit ans et est responsable du secteur « exploitation des brevets ». Il possède une très grande expérience dans le domaine de la protection juridique commerciale et l'exploitation de la propriété intellectuelle. Axel Koch assure également des cours à l'Université de la Sarre et à l'Université de technologie et de commerce de la Sarre.

Diplom-Kaufmann **Axel Koch** ist seit acht Jahren bei der WuT GmbH beschäftigt und dort für den Geschäftsbereich Patentverwertung zuständig. Er besitzt umfangreiche Erfahrung in allen Fragen des gewerblichen Rechtsschutzes und der Verwertung geistigen Eigentums. Herr Koch ist Lehrbeauftragter der Universität des Saarlandes und der Hochschule für Technik und Wirtschaft des Saarlandes.

Sébastien Leflond graduated from the engineer school of ENSGSI in Nancy (Ecole Nationale Supérieure en Génie des Systèmes Industriels) and has 4 experiences in Innovative Business Development.

With the worldwide company, Gemalto, the leader in digital security, he worked on ideation and innovation process management in the "Business Innovation Garage" in La Ciotat. For Orsys, the high level professional training firm in IT & Management, he was responsible of new business development to design the offer for Belgian market. He also had a short experience in Green Business in the field of environment & energy systems like photovoltaic.

Recently, he did an expertise specialization in EICESI Nancy to strengthen project management skills and be prepared to the international certification of PMI (Project Management Institute) and learn about US/Canadian methods like Agile or Changeboxing. He joined the team of Promotech CEI Nancy one year ago to support developing of the new approach called Living Labs. This is a user centric method which applies open innovation principles and constitutes a new way to develop business for start-ups. The main objective is to involve users in process design to validate, propose, test and activate business. They are working on a proposal for the 9th called of European program of Interreg IV-B, North West Europe.

Massimo Malvetti est professeur de physique à l'Université du Luxembourg. Il est chargé de mission auprès du recteur pour la culture scientifique et technique et coordonne les activités dans ce domaine à l'université.

Massimo Malvetti ist Professor für Physik an der Universität Luxemburg. Er ist Sonderbeauftragter des Rektors für die Vermittlung von Wissenschaft und Technik und koordiniert die Aufgaben der Universität in diesem Bereich.

PhD in physics, **Sophie Pellegrin** had an international experience of research. She then chose to focus her career on service provision for scientific activities, first throw events organization and progressively accompanying young researchers' careers.

She integrated the ABG - Intelli'agence in 2008 as a Training project manager where she designs, tests, evaluates and promotes the training courses of the association.

Benoît Roussel est Maître de Conférences à l'Ecole Nationale Supérieure en Génie des Systèmes Industriels (ENSGSI) de l'Institut National Polytechniques de Lorraine (INPL). Il travaille dans le domaine de l'innovation amont et est ergonomiste de formation initiale. Il a transféré ces connaissances et savoirs faire au domaine des projets d'ingénierie multi-métiers dans le cadre d'un doctorat en Génie Industriel au laboratoire CPI de l'Ensam Paris. Il enseigne, fait des projets industriels et effectue ses recherches dans les domaines du Génie Industriel et de l'Innovation Produits depuis 20 ans. Il a mené de nombreuses actions en Innovation par l'Usage sur des Produits dans différents secteurs industriels.

Il a développé une « Plate-forme Innovation » appelée Cré@ction rassemblant les méthodes et outils interdisciplinaires nécessaires pour mener à bien des actions Innovation en recherche, en pédagogie par projet et en entreprises. A l'occasion d'un projet européen, Il a développé un réseau de «plateformes innovation physiques» de type « Cré@ction » et d'une plateforme collaborative numérique.

Depuis 10 ans, il organise le module « 48h pour innover » mettant en œuvre les méthodes de créativité collective sur des sujets d'entreprises. En 2010, il a co-organisé la version internationale de ce module rassemblant 900 personnes réparties en 90 groupes sur 4 continents, chez 14 partenaires pour collaborer sur 6 sujets d'entreprises pendant 48h.

Benoît Roussel ist Dozent an der Ecole Nationale Supérieure en Génie des Systèmes Industriels (ENSGSI, Technische Hochschule für Industriesysteme) des Institut National Polytechniques de Lorraine (INPL, Polytechnikum, Lothringen). Er ist im Bereich der produktionsnahen Innovation tätig und von der Ausbildung her Ergonom. Seine Kenntnisse und sein Know-how hat er im Rahmen einer Habilitation als Wirtschaftsingenieur am CPI-Labor der Ensam Paris auf den Bereich der spartenübergreifenden Engineeringprojekte angewendet. Er unterrichtet, führt Industrieprojekte durch und forscht seit 20 Jahren in den Bereichen Wirtschaftsingenieurwesen und Produktinnovation. Er hat zahlreiche Initiativen für praxisbezogene Innovation an Produkten aus verschiedenen Industriebereichen umgesetzt.

Er entwickelte eine „Innovations-Plattform“ mit der Bezeichnung Cré@ction, welche die bereichsübergreifenden Methoden und Tools nutzt, die für Innovationsaktionen in den Bereichen Forschung, Projektpädagogik und Unternehmen erforderlich sind. Im Rahmen eines europäischen Projektes entwickelte er ein Netz aus „physischen Innovationsplattformen“ vom Typ Cré@ction sowie eine digitale kollaborative Plattform.

Seit 10 Jahren organisiert er das Modul „48 Stunden für Innovation“ unter Anwendung der kollektiven Kreativität auf wirtschaftliche Themen. Im Jahr 2010 war er an der Organisation der internationalen Version dieses Moduls beteiligt, bei dem 900 Personen, verteilt auf 90 Gruppen, die auf 4 Kontinenten bei 14 Partnern präsent waren und, 48 Stunden lang an 6 wirtschaftlichen Themen zusammenarbeiteten.

Parallèlement à sa thèse de doctorat en sciences biologiques, **Laurence Theunis** mène une prospection sur les actions concrètes menées dans le secteur privé visant à la protection de la biodiversité, tout en étant responsable de projets au sein de la Cellule de diffusion des sciences de la Faculté des Sciences de l'Université Libre de Belgique.

Depuis septembre 2008, elle est chargée de projets chez Objectif Recherche ASBL où elle entreprend des actions concrètes visant à favoriser l'insertion professionnelle des docteurs.

Parallel zu ihrer Doktorarbeit in Biologie befasst sich **Laurence Theunis** mit konkreten Initiativen der Privatwirtschaft, welche auf den Schutz der Artenvielfalt abzielen. Gleichzeitig ist sie Projektleiterin im Stab für die Verbreitung der Wissenschaften der naturwissenschaftlichen Fakultät der Freien Universität Belgien.

Seit September 2008 ist sie für Projekte bei Objectif Recherche ASBL zuständig, wo sie konkrete Initiativen zur Förderung der beruflichen Eingliederung von Doktoranden unternimmt.



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TEILNEHMENDE UNTERNEHMEN

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Speaker:

Cécile JOUANIQUE-DUBOIS

Business & Market Analyst

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Founded in 1989 and headquartered in Luxembourg, the company has operations in Europe, the U.S. and Asia. IEE employs 1,600 people worldwide. For more information, please visit www.iee.lu.

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Speaker:
Christel FRANCOIS
Quality manager

Fondée en 1991 par la famille LY, la société Heng Sieng est une **entreprise familiale basée en Lorraine**. Elle fabriquait alors 1 tonne de pousses de soja frais par jour, à l'aide d'une unique chambre de germination. Elle a depuis connu un essor important et sa production est aujourd'hui d'ampleur industrielle avec environ **30 tonnes jour**. Le capital social reste détenu exclusivement par les membres de la famille.

Heng Sieng produit des **germes de soja frais**, à partir de **graines de haricots mungo** en provenance d'Asie, cultivées sans OGM. Pauvres en protéines et riches en vitamine C, sans gluten et naturellement sans cholestérol, ils ont des caractéristiques nutritionnelles proches des légumes verts. Commercialisés sous la marque **Sojalor**, les germes de soja Heng Sieng sont de qualité supérieure.

Depuis son « jardin de soja » en Moselle, la société Heng Sieng fournit **grossistes et distributeurs en germes de soja frais**. Chaque semaine, des semi-remorques frigorifiques partent vers plusieurs destinations européennes, chargés de sacs et de cartons de germes de soja frais de 4 à 12 kg. Depuis 2006, Heng Sieng commercialise ses pousses de soja frais en **sachets de 4 kg et 500 g**. Une gamme de conditionnements idéale pour conserver fraîcheur, saveur et qualité.

Die 1991 von Familie LY gegründete Gesellschaft Heng Sieng ist ein **Familienunternehmen mit Sitz in Lothringen**.

Zu Beginn erzeugte es eine Tonne frische Sojasprossen pro Tag in einer einzigen Anlage. Seitdem hat es sich rasant entwickelt und die Produktion hat inzwischen industrielle Ausmaße mit rund **30 Tonnen pro Tag** erreicht. Das Gesellschaftskapital befindet sich ausschließlich im Familienbesitz.

Heng Sieng erzeugt **frische Sojasprossen** aus asiatischen **Mungobohnensamen**, die ohne GMO angebaut werden. Sie sind arm an Eiweiß und reich an Vitamin C, glutenfrei und enthalten kein Cholesterin, so dass ihre ernährungsspezifischen Merkmale denen von grünem Gemüse ähneln. Sojasprossen von Heng Sieng werden unter der Marke **Sojalor** vertrieben und sind von erstklassiger Qualität.

Von ihrem „Sojagarten“ im Département Moselle aus beliefert die Firma Heng Sieng **Großhändler und Vertriebsgesellschaften mit frischem Soja**. Jede Woche brechen Kühlaster mit Säcken und Kartons mit frischen Sojasprossen zwischen 4 und 12 kg zu mehreren Bestimmungsorten in Europa auf. Seit 2006 vertreibt Heng Sieng auch frische Sojasprossen in **Tüten zu 4 kg und 500 g**. Das sind ideale Verpackungsgrößen, um Frische, Geschmack und Qualität zu bewahren.

The Heng Sieng company was founded in 1991 by the Ly family, and is still a **Lorraine-based family firm**.

It then made 1 tonne of fresh soya bean sprouts every day, using a single germination room. Since then it has enjoyed major growth, and its production has now reached industrial scale at around **30 tonnes per day**. The shares are still exclusively held by family members.

Heng Sieng produces **fresh soya bean sprouts** from GMO-free **mung beans** imported from Asia. Being low in protein and high in Vitamin C, gluten-free and naturally cholesterol-free, their nutritional profile is much like that of green vegetables. Under the brand name **Sojalor**, Heng Sieng soya bean sprouts are a high-quality product.

Heng Sieng supplies **wholesalers and supermarkets with fresh soya bean sprouts** from its “soya garden” in the Moselle. Every week, refrigerated articulated lorries set off for several destinations around Europe, laden with bags and boxes of fresh bean sprouts weighing 4 to 12 kg each. Since 2006, Heng Sieng has been packaging its fresh soya bean sprouts in **4 kg and 500 g sachets**. This range of packaging is ideal for maintaining freshness, flavour and quality.

Durant ses études, Matthias Büttner s'était déjà penché sur l'idée de construire un agenda unissant les avantages d'un agenda et d'un carnet à spirales. L'idée de séparer l'organiseur en différents petits carnets et de les insérer dans une couverture en cuir à l'aide d'un système facile et sensé était alors pertinente.

Partant d'une baguette pour la fixation au dos de chaque carnet, diverses alternatives furent examinées. L'unique solution utilisable était une fixation au moyen d'une mécanique de serrage basée sur une barette de montre, ayant la taille d'une plume. Les premiers prototypes simples montraient rapidement le côté pratique pour une utilisation quotidienne. Mais avant le développement de l'agenda, Matthias Büttner a travaillé comme conseiller d'entreprise, d'abord chez IDS Prof. Scheer SA où Monsieur Büttner a réalisé des graphiques commerciaux en tant qu'assistant durant ses études, puis plus tard en s'installant à son compte. Au terme de 9 années d'exercice en conseil, il décida de lancer son projet risqué »agenda Büttner«, et ce malgré la situation économique de l'époque.

Il réussit cependant à développer un produit innovant pour un marché déjà saturé. Il y a désormais 12 différents types de produits chez X47, proposes en 25 différents types de cuir. En 2004, X47 faisait déjà un chiffre d'affaire de 350.000€.

Schon im Studium beschäftigte sich Matthias Büttner mit der Idee einen Timer zu bauen, der die Vorteile eines Buchkalenders mit den Vorteilen eines Ringbuches kombiniert. Da war es naheliegend den Buchkalender in kleine einzelne Blöcke zu unterteilen und diese mit Hilfe eines sinnvollen, leicht handhabbaren Systems in eine Lederhülle zu fassen. Ausgehend von einem Rohr als zentrales Befestigungsmedium am Rücken der einzelnen Hefte wurden verschiedene Alternativen untersucht. Die einzig brauchbare Alternative war die Halterung mit Hilfe eines federgelagerten Klemmmechanismus auf Basis eines Uhrensteges. Einfache, selbst gebastelte Prototypen zeigten schnell die Praktikabilität der Idee im täglichen Einsatz.

Doch vor der professionellen Entwicklung des Timers arbeitete Matthias Büttner als Unternehmensberater. Zunächst als Angestellter beim renommierten Beratungshaus IDS Prof. Scheer AG, bei dem Herr Büttner als studentische Hilfskraft während des Studiums Businessgrafiken erstellte, später selbständig in seiner eigenen Unternehmerberatung. Nach 9 Jahren Beratertätigkeit entschied sich Matthias Büttner, den wirtschaftlichen Rahmenbedingungen zum Trotz, für das riskante Unternehmen »Büttner-Timer«.

Zusammen mit einem kleinen Team aus Studenten schafft Matthias Büttner das scheinbar Unmögliche: die Entwicklung eines neuen, innovativen Produktes für einen gesättigten Markt. Heute gibt es 12 unterschiedliche X47-Produktarten, interpretiert auf 25 verschiedene Lederarten. 2004 machte X47 bereits einen Umsatz von 350.000 €.

Even while studying for his degree, Matthias Büttner was occupied with the idea of developing an organizer that combines the advantages of a bound calendar with the advantages of a loose-leaf notebook. Coming up with the idea of splitting the calendar up into small, bound booklets was quite natural. These booklets should then be held together in a leather cover using a simple, easily manageable system. Starting with a small tube as a central fixing element on the spine of the individual booklets, several different options were considered. The only practical option was a fixture using a spring-loaded fastening mechanism, based on the mechanism used on watch pins. Simple, handmade prototypes quickly showed the feasibility of the idea in everyday life.

Before the official development of the X47 organizer, Matthias Büttner was working as a management consultant. Initially as an employee at the renowned consulting firm IDS Scheer AG where Mr. Büttner created business graphics as a student assistant, and later independently with his own management consultancy. After nine years of consulting, Matthias Büttner decided that despite his positive economic situation, he would take a risk and found his "Büttner Organizer" company.

Together with a team of students, Matthias Büttner did what seemed almost impossible: He developed a new, innovative product for a saturated market. Currently there are 12 different X47 products, available in 25 different types of leather and successfully sold in five different countries. In 2004 X47 already had a sales volume of 350,000€.

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In den folgenden Seiten entdecken Sie die Forschungsprojekte aller Teilnehmer in der Form eines Posters.

In the following pages, learn more about the research project of all participants presented as a poster.

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POSTERS: ELISEZ LES MEILLEURS!

POSTERS: WÄHLEN SIE DIE BESTEN!

POSTERS: VOTE FOR THE BEST ONES!

Reminder: it is not a scientific poster session but a scientific popularisation poster session.

Before rating a poster, do please remember to ask yourself those few questions:

- does the poster shortly present the PhD candidate?
- are the title, author's name and university prominent and eye-catching?
- is the poster understandable by a non-scientific audience?
- is the poster understandable without any comments of the author?
- can this poster catch attention of a company or students of different academic fields?
- is the poster in English?
- is the poster understandable by people from other nationalities?
- is the poster a visual representation?
- do illustrations (photos, figures) dominate the poster?
- is it readable from a distance of two meters?

1. Peer voting

Best posters are selected through anonymous voting by PhD candidates.

Posters are grouped in 7 colours: white (posters n°1– 10), orange (posters n°11– 20), blue (posters n°21– 30), red (posters n°31-40), green (posters n°41-50), yellow (posters n°51-60), black (posters n°61-70).

On Sunday evening, each group rates 3 other groups, according to following chart:

Rating group	Rated group 1	Rated group 2	Rated group 3
White	Orange	Blue	Red
Orange	Blue	Red	Green
Blue	Red	Green	Yellow
Red	Green	Yellow	Black
Green	Yellow	Black	White
Yellow	Black	White	Orange
Black	White	Orange	Blue

Each PhD candidate selects the 5 best posters from the groups he rates:

- 5 points to n°1
- 4 points to n°2
- 3 points to n°3
- 2 points to n°4
- 1 point to n°5

Blank or incomplete voting papers will be excluded from the count. Doctoriales®' organisation committee will count the points.

The best ones will be awarded.

2. Jury voting

Posters will also be rated by a jury. The best ones will be awarded.

INTRODUCTION

Android based devices are becoming widespread. As a result and since these devices contain personal and confidential data, the security model of the android software stack has been analyzed extensively. One key feature of the security model is that applications must declare a list of permissions they are using to access resources. Using static analysis, we extracted a permission table from Android which maps methods to permissions and is useful to improve the Android documentation. Then, we used this mapping within a tool we developed to check that applications effectively need all the permissions they declare. Using our tool on a set of android applications, we found out that a non negligible part of the applications do not use all the permissions they declare. Consequently, the attack surface of such applications can be reduced by removing the non-needed permissions.

CONSEQUENCES

2. Data Theft
This can retrieve data from your device and sell it (credit card number, valid e-mail addresses, ...).



1. Targeted marketing
Applications can link sensitive data (GPS coordinates, ...) to send targeted advertisements (based on your habits) which are displayed on the screen.



WHAT CAN BE DONE



1. What?

- analyze Android platform / applications
- analyze applications distribution process

2. How?

- testing, dynamic analysis
- static analysis
- data mining

APPLICATIONS



Users of such device, install and run applications to play, communicate or work.

WHAT USERS TRUST

When installing an application, users trust among others the following:

- developers of applications
- markets where apps. are downloaded
- resources are protected from apps.

SECURITY?

- Users do not care about permissions (they just want applications to work)
- Application declare too many permissions (developers do not declare them properly)
- Users can not change permissions (they must accept all of them to install an application)
- Several applications can collude to bypass security framework (they can "share" permissions)
- Application can be exploited through system vulnerabilities ("bugs" are present in the system)

WORK IN PROGRESS



We have created generic methodologies to analyze permission-based system (like Android). In practice we computed:

- the Android framework permission table (useful to improve the documentation for developers)
- real permission sets for Android applications (in the real world, 12% of applications declare too many permissions)

CONCLUSION

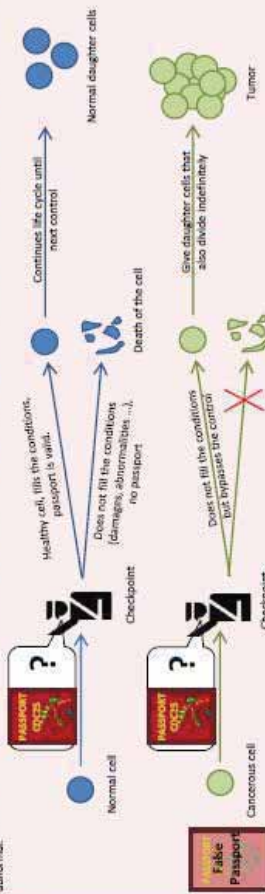
We have a generic approach to reduce the attack surface of permission-based software. Our prototype implementation is able to automatically find 4532 permission checks in the Android framework. In a permission-based framework, all these checks have to be documented, hence our approach does a significant job in achieving this task in a systematic manner. For end-user applications, our evaluation revealed that 94/742 crawled applications from an application store for Android indeed suffer from declaring too many permissions. Furthermore, we are exploring how to express permission enforcement as a cross cutting concern, in order to automatically add or remove permission enforcement points at the level of application or the framework, according to the security specification.



How a cell become cancerous?

In organisms, health of cells is controlled throughout their life by a checkpoint mechanism. This mechanism is able to detect abnormalities and damages of the cell and then decide if the cell can be repaired and continue its life or if it must die. In the checkpoint mechanism, the role of p53 protein is played by various proteins, ones are called CDC25s. Sometimes, cells become mutated. This can be due to multiple events from various origins (genetic, aging, pollution, tobacco, etc.). Cells are then able to bypass the checkpoint, they acquire the capacity to divide indefinitely, becoming thus cancerous cells.

These cancerous cells will divide to give immortal daughter cells, forming a tumor. When the tumor is big enough, cells can migrate in the whole organism and establish metastasis in various organs. This leads to the disruption of vital functions, and then, to death. In cancer, CDC25s are overexpressed; this leads to the bypass of the checkpoint even if the cell is abnormal.



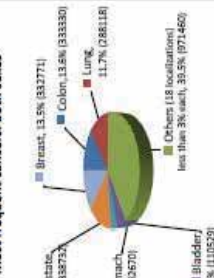
Breast Cancer in Europe

This study principally focuses on breast cancer:

- The CDC25s are overexpressed in 70% of breast cancer cases, so it is a good target.
- One woman on ten will have breast cancer during her life.
- Breast cancer represents 13.5% of all cancer and 2.1mln of cases.
- Mortality of breast cancer is stable but the number of cases increase.
- Some breast cancers do not respond to classical chemotherapeutic treatment.

→ It is necessary to develop new treatments focused on new targets such as CDC25.

Most frequent cancers: both sexes



European Union (2008): Estimated incidence and mortality. Both Sexes. Legend: Localizations, value in percent of total cancers (number of cases). Adapted from European Cancer Observatory 2011.



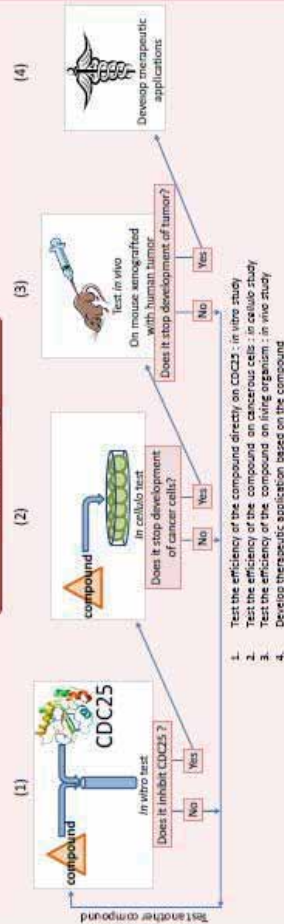
Adapted from European Cancer Observatory 2011.

Aim of the study

The growth rate of the tumoral cells could be stopped or decreased by inhibiting CDC25 proteins.

Our therapeutic approach is based on the inhibition of these CDC25s by synthetic compounds, which will permit to stop or decrease cancer cell growth.

Methodology



Production planning in reconfigurable manufacturing systems using adapted metaheuristics

BENSMARINE Abderrahmane, LGIPM, Université Paul Verlaine-Metz

1. Existing manufacturing systems:



1. DMS: Dedicated manufacturing systems:
Transfer lines, based on fixed automation, produce a specific part at high volume throughput. Cost-effective as long as market demand matches the supply. Generally underutilized, and thereby create losses. Not scalable and the product variety is almost impossible



Dedicated manufacturing line

2. FMS: Flexible manufacturing systems:

Consists of costly computer numerically controlled (CNC) machines, able to produce large variety of products on the same system. The production rate of FMSs is lower than that of dedicated lines, and they are not designed for a quick change in their capacity: they are not responsive to market changes.



Industrial robots

3. RMS: Reconfigurable manufacturing:

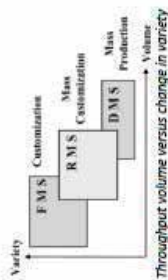
Reconfigurable manufacturing systems are a new manufacturing paradigm where machine components, machines, cells, or material handling units can be added, removed, modified, or interchanged as needed to respond quickly to changing requirements. RMS can be seen as the natural evolution of the two existing manufacturing systems used by the industry



The same machine in two different configurations

RMS combines the high throughput of DMS with the flexibility of FMS (Fig. 1), and reacts quickly and efficiently to market changes. This is mainly achieved through:

- Design of a system and machines with adjustable structure that enable system scalability.
- Design of a manufacturing system around the part family, with the customized flexibility required for producing all parts of the part family.



Throughput volume versus change in variety

Since RMS is characterized by multi-configuration machines, machines can be changed depending upon the capacity and the design requirement of the product. Thus, production planning and scheduling problem should be resolved having in mind this characteristic. The problem is to decide which manufacturing processes and machines should be used to perform the various operations necessary to produce a component, and the sequence that the processes should follow. In our work, we use Genetic Algorithms, a famous metaheuristic as a resolution technique.

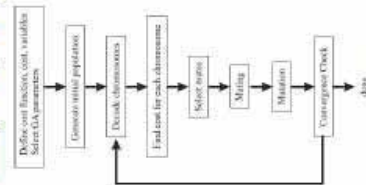
II. Metaheuristics:

Metaheuristic designates a computational method that optimizes a problem by iteratively trying to improve a candidate solution with regard to a given measure of quality. Often naturally inspired, metaheuristics make few or no assumptions about the problem being optimized and can search very large spaces of candidate solutions. However, metaheuristics do not guarantee an optimal solution is ever found.

Metaheuristics are used for **combinatorial optimization** in which an optimal solution is sought over a discrete search-space, and also used for problems over real-valued search-spaces when the function to be optimized is not continuous or differentiable.

Genetic algorithm:

A genetic algorithm (GA) is a metaheuristic that mimics the process of natural evolution. This heuristic is routinely used to generate useful solutions to optimization problems using techniques inspired by natural evolution, such as inheritance, mutation, selection, and crossover.



Basic algorithm of GA

For more details:
A. Bensmaine et al. (2011) Process plan generation in reconfigurable manufacturing systems using adapted NSGA-II and AMOSA. The 9th IEEE International Conference on Industrial Informatics.

A. Bensmaine et al. (2011) Simulation-Based NSGA-II Approach for Multi-Unit Process Plans Generation in Reconfigurable Manufacturing System. The 18th IEEE International Conference on Emerging Technologies and Factory Automation.

Vine resistance to Mildew: chemical approach

Loïc Becker¹, Vincent Carrière, Anne Poutaraut², Patrick Chaimbault¹

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1. Winegrowing: important part of the French culture



- ◁ Red wine, origin of the "French paradox"
- ◁ With moderation, a healthy behaviour

2. Preservation of vine against diseases is vital



European varieties are susceptible to illnesses

3. One of the diseases: Mildew



Mildew ⇒

- attacks leaves and wine grapes
- induces harvest damage
- contaminates other vine plants by air

4. Solutions

- Phytosanitary treatments

Cons:

- ◁ harmful effects on environment
- ◁ expensive
- ◁ less and less efficient

⇒ **Alternative answer**

- Create hybrids by crossing of sensitive and resilient varieties

Understanding vine resistance to Mildew

Mass Spectrometry: an analytical tool for chemistry

- Mass detection of many compounds in one experiment
- Identification by fragmentation (puzzle reconstruction)



Leaf selection and sample preparation

Direct analysis by Mass Spectrometry

Data processing



Mass Spectrometry Imaging:

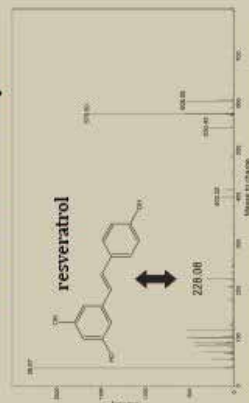
compound localisation in the analysed area

Selected compound: **resveratrol**

- Molecule well known for its role in plant defence but inefficient against Mildew
- Need further experiments to find compounds involved in the resistance to this pathogen

Mass spectrum:

One Peak = One Compound



AROUSAL, EXPERIENCES, AND PSYCHO-EMOTIONAL MANAGEMENT OF THE NORMS' CONFLICTS IN AFRICAN POSTCOLONIAL CONTEXT:

CASE STUDY OF THE SUCCESSION PRACTICE IN CAMEROON

Presented by: Joseph BOMDA
PhD holder (Social Psychology, University of Yaoundé 1) - E-mail: Joseph.Bomda@univ-yaounde1.cm

More than a half-century after its independence, Cameroonian, like other African people, are experiencing many conflicts of norms in their succession practices. Among other conflicts, one can mention:

1. "Racialist" or Interreligious conflict between Christians, Muslims, and Animists.
2. "Tripartite" conflicts between Anglophone and Francophone people.
3. But the main source of conflict is the "Ordinary" or Interpersonal conflict between ancestral and modern laws (of French or English inspiration), because both are legally accepted.

VICTIMS OF THE CONFLICTS BETWEEN ANCESTRAL AND MODERN LEGAL NORMS

- #### MODERN LAWS' PRINCIPLES
1. Several persons have access to the inheritance.
 2. Girls and widows are not parts of the inheritance. Rather, they can inherit.
 3. Girls and boys are equal.
 4. The death nullifies the marriage bond. Consequently, the widow is not obliged to enter into fraternal marriage.
 5. The heir doesn't have to assume the rights and duties of his predecessor. It is optional.



- #### ANCESTRAL LAWS' PRINCIPLES
1. One person receives the inheritance to be used for the wellbeing of the family.
 2. Girls and widows are parts of the inheritance.
 3. Girls and boys are not equal.
 4. Widows have to remarry with a member of the family of her deceased husband.
 5. The heir enjoys necessarily the rights and assumes the duties of his predecessor.

THREE QUESTIONS SHAPE OUR STUDY:

1. What do the victims of such conflicts experience from psycho-emotional point of view?
2. How do they manage these experiences of conflicts?
3. In which way can these experiences and their management contribute to the debates on social psychology?

THEORY



Leon Festinger
The cognitive theory allows us to postulate that victims experience cognitive dissonance and associated emotional states. Through a self-balanced mechanism, victims (131 men and 631 women) Cameroonian answered the first two questions. The analysis of 76 interviews and analyses are in progress.

VICTIMS' PSYCHO-EMOTIONAL EXPERIENCES

Dissonance cognitive and related emotional states	Q1	%	Dissonance	Q2	%
Psychological discomfort					
Anger					
Disappointment					
Worry					
Stress					
Depression					
Loneliness					
Isolation					
Self-blame					
Self-doubt					
Self-hatred					
Self-loathing					
Self-dislike					
Self-reproach					
Self-criticism					
Self-accusation					
Self-condemnation					
Self-punishment					
Self-harm					
Self-destruction					
Self-sabotage					
Self-hatred					
Self-loathing					
Self-dislike					
Self-reproach					
Self-criticism					
Self-accusation					
Self-condemnation					
Self-punishment					
Self-harm					
Self-destruction					
Self-sabotage					

PSYCHO-EMOTIONAL MANAGEMENT

1. Respect and enhancement of ancestral law.
2. Respect and enhancement of modern law.
3. Avoidance of situation which would arouse victims' psycho-emotional experiences.
4. Confusion between some aspects of the ancestral and modern legal norms.
5. Social sharing of the feelings.

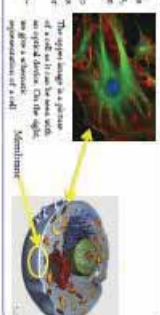
Using computers to optimize and understand drug delivery mechanisms



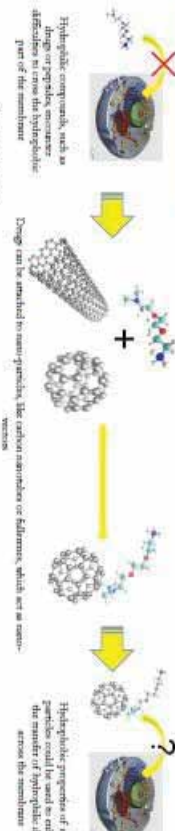
Equipe de recherche en Nanomédecine (NANOMED) - UMR 7262 - Université de Nancy 1
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Background

Drugs are compounds (molecules) which are used to cure an organism from diseases. On a cellular scale, they act on structures which are called cells. The cells constitute the functional base unit of life. They are the constituent of all living organisms, from bacteria to animals. Their structure can be rather complex. In a simple way, the architecture consists of a membrane, the cytoplasm and a nucleus.
Drugs act on different parts of the cell. Some of them may enter the cell and act on the membrane. Some others need to go inside the cell and have to cross the membrane. The major problem is that this membrane acts as a barrier, i.e. prevents the entry of the drugs from reaching the intracellular medium. Large amounts of product need to be used and can be harmful for the organism.
Nanomedicine: why are we interested in reducing the quantity of drug compounds. In this study, we focus on the use of "nanovectors". These are tiny vessels with internal self-propelled properties that can penetrate the target of drugs.



Drugs and nano-vectors



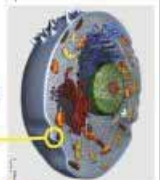
- What are the molecules mechanisms?
- Can we improve delivery?

Atomistic modelling

Method
Molecular dynamics is based on solving the equations of motion:
$$\sum_i F_i = m_i \cdot a_i$$

The forces derive from interactions between particles (atoms):
$$F = -\frac{dU}{dx}$$

The force field contains all the information to calculate the forces. It contains inter-molecular and intra-molecular interactions.

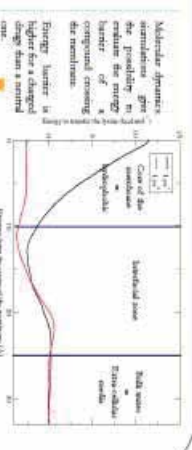
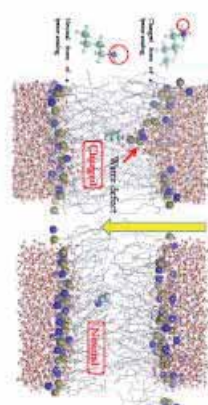


Techniques allow to measure properties of the system (diffusion properties, electrostatic properties, free energy calculations).
Simulations involve from ~10,000 atoms up to 1,000,000 atoms and implications can range from a few nanoseconds to some microseconds. Calculations require powerful computers with many processors (CPUs) from 16 to thousands of farms.

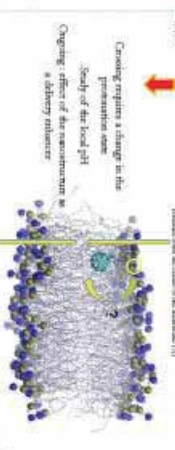


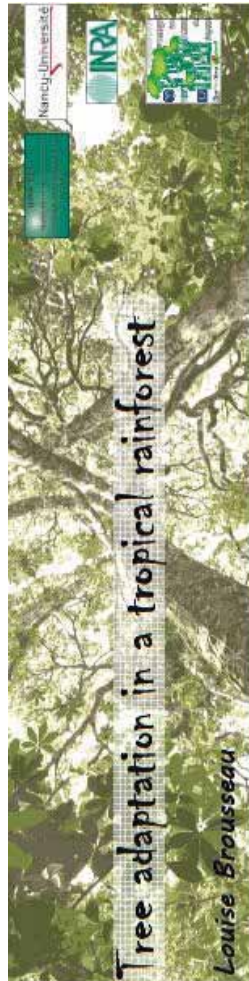
Results and perspectives

The insertion of a peptide attached to a nanovector is a complex process. It may involve a pre-organization step change, i.e. domain motion with a change in the electrostatic charge.
We have investigated single case study of amino acids (from a neutral to a charged) using molecular dynamics simulations.



When a charged compound, how the peptide analog, passes through the membrane, water density and deformation of the lipid occur.





Louise Brousseau

Tropical rainforests are among the most luxurious ecosystems on earth. However, these spectacular habitats are threatened by forest fragmentation and may be endangered by climate change, which is probably on the way. A major challenge is to understand how species would be able to respond to severe environmental changes and how populations would adapt to the new conditions.



Bottomlands are characterized by hydromorphic soils with seasonal or permanent water-logging

Species distribution across forest landscapes seems to be controlled by environmental variability associated with locally contrasted topographic conditions (bottomlands, slopes, hilltops):

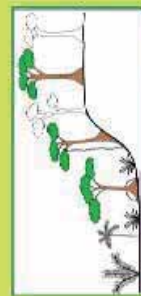
► It raises the question about the adaptation of forest tree species to local conditions and its role in speciation processes and future species responses to global changes.



Hilltop-living trees colonize soils submitted to strong vertical and lateral droughts, and associated drought-tolerance

Population Genetics

Within a species, the genetic differentiation of populations spread across environmental gradients is possible if disruptive natural selection overcomes gene flow (hybridization and dispersal) between populations:



Strong relative pressures

► Trees of the genus *Eperua* are genetically differentiated between habitats:

► Environmental heterogeneity between hilltops and bottomlands may have produced sufficient selective pressures allowing the genetic divergence of populations

Ecophysiology

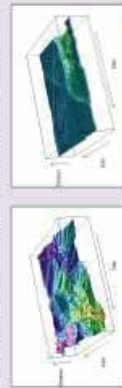
Investigation of survival and growth properties of seedlings submitted to different kinds of experiments:

► A common garden experiment revealed phenotypic and genetic variability for traits related to growth, leaf structure, and photosynthesis between seedlings from contrasted habitats in a non-limiting environment



► A treatment experiment was used to reveal contrasted responses of seedlings from different provenances in response to hydric constraints, including water-logging and severe drought

► Reciprocal transplants between contrasted geographic locations and local conditions were carried out in order to test adaptation in natural conditions and to compare the adaptation along local gradients with the adaptation to regional ones



Model Predictive Control of Fluid Catalytic Cracking Unit (FCC) With Estimation of Key Parameters

Alexandre Tephlaïra Boun, Jean-Pierre Corriu

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I. Curriculum Vitae

Alexandre Tephlaïra BOUN is a lecturer at Douais University, Cameroun. He received his Master degree in 2007 in computer process control. He is currently carrying out research at INPL for the PhD thesis. His area of interest is model predictive control.

II. Introduction

Fluid catalytic cracking is the most important process in a modern refinery unit, due to its complex nature, its efficient control is still a challenge to the scientific community.

The aim of this research is to carry out an efficient control of an FCC unit by:

- Modelling the FCC based on mass and energy balances
- Designing a robust Model Predictive Control
- Estimating key variables of the process such as the concentration of coke on the catalyst, by a state estimator such as the extended Kalman filter.

III. Description of a modern FCC process

A modern FCC process consists of several parts (Figure 1), mainly the riser, the particle separator and the regenerator. The complex cracking reactions of the hydrocarbon feed take place in the riser where the catalyst is progressively covered by coke. The catalyst is reactivated in the regenerator by burning the deposited coke with air.

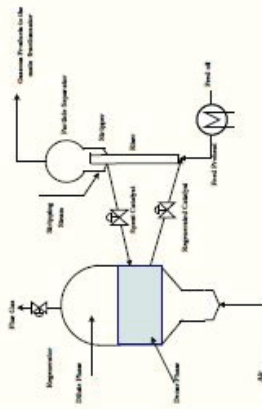


FIGURE 1. Schematic diagram of a modern FCC unit.

The Reactor Riser

- Feed oil enters the riser at the bottom,
- The regenerated catalyst is also introduced at the bottom of the riser,
- The catalyst is entrained in the riser by the vaporized oil,
- Cracking reactions occur in the riser
- Riser dimensions: height, 40m; diameter, 1.2m.

The Regenerator

- This is a fluidized bed where the catalyst activity is restored,
- The combustion is obtained by the air that is blown which fluidizes the catalyst,
- Due to the heat of combustion, the regenerator supplies the heat necessary for the riser to crack the feed.

The Valves

- The top valve controls the flow rate of the regenerated catalyst to the riser,
- The bottom valve controls the flow rate of the spent catalyst to the regenerator.

IV. The products derived from a FCC process

- Gasoline
- Naphtalene
- Gas (C₄ + lighter)
- Heavy gas oil

V. The importance of a good control strategy

- Guarantees the process operating stability,
- Maintains the product quality,
- Minimizes energy consumption,
- Improves process economic performance

VI. Model Predictive Control

Model Predictive control is an advanced control technique suitable for complex processes such as the FCC.

- It uses a dynamic model of the process to anticipate the future behavior of the process,
- It is the only control that takes into account the constraints on the manipulated and even the controlled variables,
- It can compensate measurable disturbances,
- Brings real financial gains.

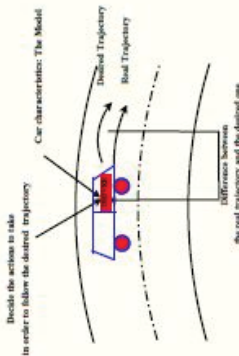


FIGURE 2. Intuitive use of MPC in a driving situation: the driver anticipates by considering the future trajectory.

VII. Conclusion

- The major objectives of this research are described.
- The economic importance of the process is emphasized.
- The interest of an efficient control strategy is underlined.
- Model Predictive Control is summarized.

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Assessing knowledge of HIV/AIDS transmission and prevention measures in occupational settings in Ecuador

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AUTHOR

Maria Cabezas is an Ecuadorian medical doctor (MD) specialized in occupational medicine. For several years, she was involved in studies and programs focusing on prevention and care of HIV/AIDS in Ecuador and in other Latin American countries. Her research interest has always been in the HIV/AIDS domain. She is currently a PhD student at the School of Public Health, University of Liège, Liège, Belgium.

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BACKGROUND

Ecuador is located in South America, and has an area of 272,846 km². In 2011 estimates put Ecuador's population at 15,007,343. The first case of HIV/AIDS was reported in 1984. The prevalence of the disease has continued to increase ever since. In August 2007, the Public Health Ministry of Ecuador registered 12,246 total infected people with HIV. The most part of cases were in worker population and the most of infected people were 20-44 years old. In 2010 the Director of the National AIDS Program in Ecuador reported an increase of the total HIV/AIDS cases and confirmed that the population more impacted were state workers. These figures question the role of enterprises in the progression of HIV infection.

OBJECTIVE

To evaluate the knowledge of HIV/AIDS transmission and prevention measures among workers in enterprises in Ecuador

METHODS AND MATERIALS

This is a cross sectional study based on a random sample of 115 enterprises (1732 workers), stratified by selected provinces (Pichincha, Guayas and Azuay). It used the "Behavioral Surveillance Surveys - Adult questionnaire", developed by Family Health International. HIV transmission knowledge was evaluated with the most common local misconceptions about HIV transmission and prevention measure knowledge was evaluated by means of consistent condom use and mutually monogamy. Descriptive statistics, chi square test and logistic regression were performed with SAS.

RESULTS

Incorrect beliefs about HIV/AIDS transmission were reported in 46.6% (95% CI: 44.1-49.1) of subjects. Misconception was higher in males (OR=1.6 [1.25-1.95]), in manual workers (OR=2.7 [1.63-4.31]) and in low educational subjects (OR=3.0 [2.7-3.84]). Misconception related with prevention methods were found in 32% (95% CI: 29.7-34.3) respondents. This proportion was higher in low educational subjects (OR=2.0 [1.56-2.44]) and in not married subjects (OR=1.3 [1.06-1.68]).



CONCLUSIONS

The study demonstrates a marked lack of HIV/AIDS knowledge in occupational settings in Ecuador. This is influenced by factors such as gender, educational level and working category.

The study emphasizes the need for more educational programs to reduce HIV transmission in enterprises in Ecuador.

ACKNOWLEDGMENT

This research was made possible by a grant from the Belgian Development Agency.

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User Simulation in Dialogue Systems using Imitation Learning

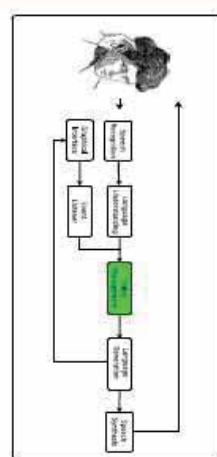
Santhikumar Chandrasekhar (santhikumar.chandrasekhar@spelec.fr)

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Speech interface for human computer interaction



Architecture of spoken dialogue systems



Spoken Dialogue Systems

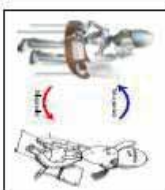
- Natural language interfaces for human-computer interaction
- Speech is a frequently used mode of interaction
- Involves: Speech recognition / synthesis, language understanding, generation
- Often designed to perform specific tasks (goal-oriented dialogue systems)
- Light ticket booking
- Low information
- In-car entertainment
- Tutoring

Decision making in dialogue systems

- Dialogue management involves decision making
- Sequential decision making problem
- System has to decide what to do next
- Solution: Find a dialogue plan/policy
- Policy navigates the speech interface
- Given the situation policy tests what to do
- How to find a good policy?

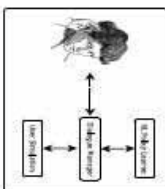
How to learn a good dialogue policy?

- Need intelligence for decision making
- Solution: Artificial intelligence
- Learn from human data / interaction
- Reinforcement learning to find policy [a]
- Designer tells what to do
- System learns how to do
- Need for policy evaluation
- Reinforcement learning needs data



User simulations for spoken dialogue systems

- Dialogue data generation is expensive
- User simulators [4] are built from data
- Simulators can generate synthetic data
- Used to estimate / evaluate policies
- What is the best way to simulate users?
- How to measure performance?

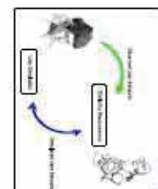


Example dialogue management problem

- Restaurant information dialogue system (slot filling)
- Slot-1: Location of the restaurant
- Slot-2: Price-range
- Slot-3: Cuisine or type
- Restaurant information dialogue problem is casted as an MDP:
- Dialog state: {slot-1, slot-2, slot-3, goal, intent}
- Action: Ask-slot (3), Confirm-slot (3), Implicit-confirm (6), Inform-results
- Reward: 25 (correct slot value), -75 (incorrect value), -100 (empty slot)
- Discount factor: $\gamma = 0.95$

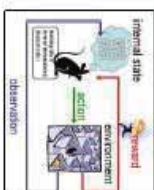
Proposed approach for building user simulators

- Simulate human behavior precisely
- Learn by observing human behavior
- Learn from human data
- Involves sequence of decisions
- Quality impacts dialogue policy
- Need for behavior evaluation
- Simulate users by imitation learning [2]



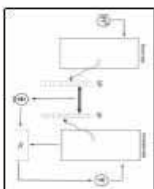
Reinforcement learning

- Learning from interaction
- Designer tells what the agent should do
- Agent interacts with the environment
- Agent learns how to perform the task
- Accepted approach for interface design
- Precisely defining the task is difficult



Imitation learning

- Focus on imitating user behavior [3, 1]
- No need to specify the task precisely
- Direct use of human data for training
- Suitable for complex tasks
- Similarity measure quality of behavior
- Opportunity for building complex systems



References

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Blood cells diagnosis using Electrical measurement and fluidic microsystem

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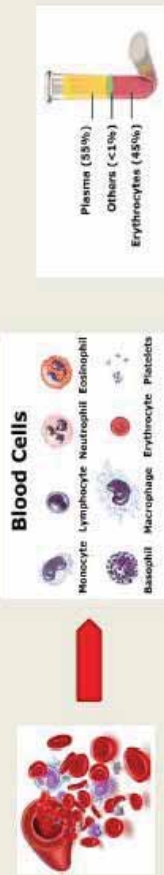
Nancy-Université
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Introduction

Current blood diagnosis instruments are expensive and bulky. New micro and nano-technologies permit to perform portable and low-cost instruments. An hybrid system based on electrical measurements (bio-impedance spectroscopy) coupled to a microfluidic device is developed to measure electrical properties on cells, one by one. The intent is to design an original system using Surface Acoustic Wave (SAW) technology, to move cells without classical pressure pump in a micro-channel, by surface deformation.

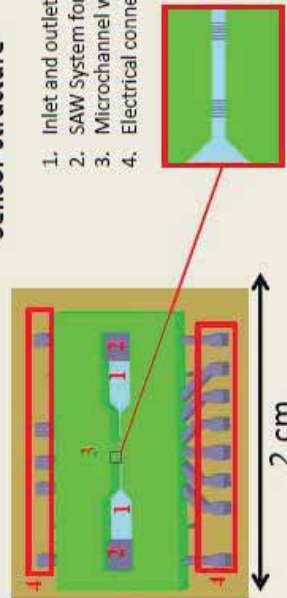
Interest of single cell measurements

Blood is composed of a large amount of different cells. Some cells just represent a very few part of blood, and no appear in a global measure. This problem is solved using cell by cell measurements.



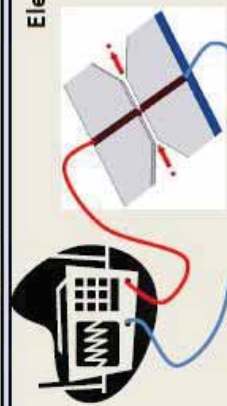
Sensor structure

1. Inlet and outlet Channel (Deposit of blood).
2. SAW System for fluid pumping.
3. Microchannel with measurement electrodes.
4. Electrical connections, for measuring instrument.



Electric tests

Electric tests are performed when cells pass between the electrodes. The electrical response depends of physical and chemical properties of each cell. It is possible to detect infected or abnormal cells.



This sensor will be used as a rapid and low-cost diagnosis tool of blood, and will optimize time during medical analysis.

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Modelling, Optimization and Control of a Semi-batch Emulsion-Polymerization Reactor

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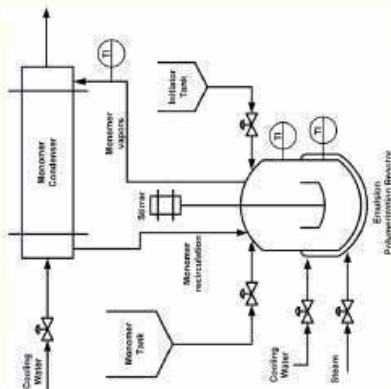
I. Curriculum Vitae

Iván Dario Gil Chavez is a lecturer of the Department of Chemical and Environmental Engineering at the Universidad Nacional de Colombia, Sede Bogotá. He received B.S. and M.Sc. degrees from the Universidad Nacional de Colombia. Gil has worked in process design and control industry in Colombia. His research focuses on modelling, simulation and control of distillation operations. Currently, Iván Gil is PhD student at INPL at Nancy and he is working on optimization and control of semi-batch emulsion polymerization reactors.

II. Introduction

Polymers are substances composed by a large quantity of structural units known as monomers joined by a specific type of linkage. These substances often form into a chain-like structure. Starch, cellulose, and rubber all possess polymeric properties.

III. Process Description



- Emulsion-polymerization is an important industrial process.
- Used to produce a wide range of synthetic polymers, e.g., adhesives, paints, coatings and binders.
- Polymer formation occurs in an inert medium in which the monomer is partially soluble.
- Polymers of high molecular weight can be produced at high polymerization rates.

FIGURE 1: Process flow diagram for an emulsion polymerization reactor.

However, some characteristics are challenging for process engineers (Gentrie et al., 1999; Heula et al., 2011):

- Temperature control is difficult due to:
 - high exothermicity,
 - high viscosity of the reacting mixture,
 - limited capacity to remove heat in the cooling jacket,
 - fouling and non-ideal mixing which are more critical when the solid content of the medium increases,
- The productivity should be improved by minimizing the final time while respecting the final product quality.

VI. Conclusion

The study will be divided into three main steps:

- Modeling of the reactor, kinetics and chemical reaction with the corresponding parameters estimation,
- Dynamic optimization with respect to temperature and feed flow rate to minimize the total batch time subject to quality product and safety constraints,
- Reactor control using geometric or predictive control, based on models, together with state estimation.

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Psycho-social factors related to teaching sustainable behaviours and student's sustainable behaviours

Astrid de Leeuw, University of Luxembourg

European Doctoriales®
OCTOBER, 16-21, 2011
Ventron, France



UNESCO

Achieving sustainability will depend ultimately on changes in behaviour and lifestyles. These changes will need to be motivated by a shift in values and rooted in the cultural and moral precepts upon which behaviour is predicated.



The UN General Assembly declared the time period 2005 to 2014 as the Decade of Education for Sustainable Development (UNESCO, 2002).

Strategic perspectives to inform education and learning for sustainable development

Socio-cultural perspectives

- Human rights
- Peace and human security
- Gender equality
- Cultural diversity and intercultural understanding
- Health
- HIV/AIDS
- Governance

Environmental perspectives

- Natural resources (water, energy, agriculture, biodiversity)
- Climate change
- Rural development
- Sustainable urbanisation
- Disaster prevention and mitigation

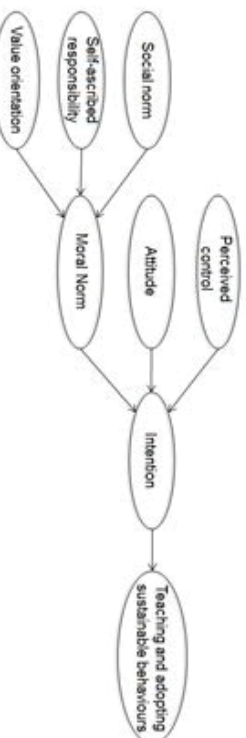
Economic perspectives

- Poverty reduction
- Corporate responsibility and accountability
- Market economy
- Sustainable consumption



WHAT MOTIVATES TEACHERS AND PROFESSORS TO TEACH ABOUT SUSTAINABLE DEVELOPMENT? WHAT MOTIVATES PUPILS AND STUDENTS TO ADOPT SUSTAINABLE BEHAVIOURS?

It seems that communicating knowledge about sustainability alone is not enough to induce sustainable habits. It is also important to identify the main psycho-social factors that determine whether individuals adopt sustainable behaviours.



The study will be based on a mixed method research design, thus combining qualitative (i.e. focus groups) and quantitative (i.e. valid questionnaires) approaches.

- Developing the questionnaires
- Conducting the pilot studies

- Administering the final questionnaires to each target group (data collection)

- Conducting a follow-up at the University
- Disseminating the results



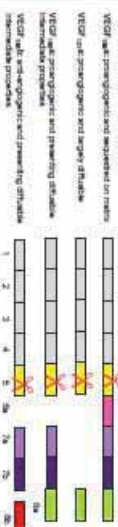
Recombinant Human VEGF-A variants: molecules for treating pathologies related to abnormal angiogenesis.

R. DELCOMBEL, L. JANSSEN, V. TATU, A. COUGE and C. LAMBERT
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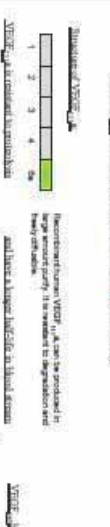
INTRODUCTION

VEGF is one the most important factors involved in angiogenesis, the growth of blood vessels from pre-existing ones. It is found in different forms (isoforms) produced from a single gene by a process known as alternative splicing of the primary gene. The different isoforms have different biological activities. They are classified according to the number of amino acids (VEGF₁₂₁ and the isoform of the full length isoform (VEGF₁₆₅)). VEGF₁₂₁ is a pro-angiogenic factor, while VEGF₁₆₅ is an anti-angiogenic factor.

Standardized Composites



VEGF₁₂₁ IN TREATMENT OF ISCHEMIA



VEGF₁₂₁ is effective and does not require a vehicle



Antisense VEGF₁₂₁ is a treatment of ischemia



Romain DELCOMBEL

Doctor in Veterinary Medicine (University of Liège, Belgium)
Master in Sciences of Management (BSC-CEG, Liège, Belgium)
PhD Student (ULiège, Liège, Belgium) since January 2006.
SRLS: I-40 work (Dietrich-Breiting, PCR, Cell Culture, In vivo experiments).
In a team working Veterinary knowledge, Logistics, Management of Collaborations with University of Paris 13 (France) and Bristol (UK).
Languages: French, English



Pathologies with angiogenesis: time and seasonal VEGF treatment

Pathologies	Cause	Preventive treatment
• Diabetic foot ulcer • Peripheral vascular disease • Arterial hypertension • Heart failure • Chronic kidney disease	Reduced angiogenesis	VEGF ₁₂₁
• New blood vessel formation • Cancer	Excessive angiogenesis	VEGF ₁₆₅

VEGF₁₆₅ IN TREATMENT FOR REGULATING ABNORMAL ANGIOGENESIS



PERSPECTIVES AND DISCUSSION

Genetic engineering allows the production of VEGF isoforms with altered properties (antagonistic-agonistic, anti-angiogenic and pro-angiogenic) for treating various in vivo models. VEGF₁₂₁ is a pro-angiogenic factor, while VEGF₁₆₅ is an anti-angiogenic factor. VEGF₁₂₁ is more active in promoting angiogenesis and permeability than VEGF₁₆₅. VEGF₁₆₅ is more active in inhibiting angiogenesis and permeability than VEGF₁₂₁. VEGF₁₂₁ is a pro-angiogenic factor, while VEGF₁₆₅ is an anti-angiogenic factor. VEGF₁₂₁ is more active in promoting angiogenesis and permeability than VEGF₁₆₅. VEGF₁₆₅ is more active in inhibiting angiogenesis and permeability than VEGF₁₂₁.

ECOTOXICOLOGY OF PERSISTENT ORGANIC POLLUTANTS & TRACE ELEMENTS IN TESTUDINES



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--- BACKGROUND ---

- **Pathways** are (1) naturally occurring compounds of which the initial concentration was modified by human, OR (2) compounds introduced by human in a place where they were previously absent.
- **Accumulation** is a discipline aiming to describe the transfer pattern of pollutants & to understand their effects in environment and organisms.
- In organisms, the main entry way of pollutants is food.
- **Bioaccumulation & biomagnification** are processes by which pollutants are accumulated within the individual & transferred through the food chain, from producers to consumers (Figure 1).
- **Maternal transfer** of pollutants to the offspring is also a significant entry way occurring during vitellogenesis (egg formation) and in association with proteins (trace elements) or lipids (POPs).

ACCUMULATION



Every 2-3 years, female marine turtles lay 3-5 nests containing about one hundred eggs each. No parental care is given to the developing embryo which thus rely on the **MATERNAL TRANSFER OF ESSENTIAL ELEMENTS** to ensure its successful development. Concurrently, pollutants are transferred to the egg. Studies suggested that the embryonic stages are the most vulnerable period to toxic exposure.

Figure 1. Food chain.



--- ECOTOXICOLOGICAL AIMS OF THE STUDY ---

- **WATER POLLUTANTS ARE GIVER & MATERNALLY TRANSFERRED IN MARINE TURTLES FROM GASTROPODS (LESSEY ANATILES)**

Tissues (fresh-laid eggs & maternal citreous tissue) were collected from 2 marine turtles species (Figure 3).

Main discussion: (A) All investigated pollutants were collected in tissues meaning that females accumulated toxic from their foraging ground & transferred them to their eggs.

(B) Pollutant levels in organism depend of environmental exposure of their feeding ground & of their level in the food chain. *C. mydas* and *E. imbricata* respectively feed on marine plants (seagrass) and sponges. Both occupy a low food level explaining the low observed pollutant levels. Additionally, levels were below those reported as impacting individual/embryo health.

However, marine turtles are poorly investigated in ecotoxicological studies and the lack of toxic threshold does not allow to draw conclusions about the fate of adult individuals/developing embryos.

Further laboratory analysis are needed to better apprehend toxic threat in marine turtles.

(C) **WHAT IS THE ACCUMULATION PATTERN AND THE EFFECT OF MATERNAL IN AQUATIC TURTLES?**

Selenium Se can act as essential (micronutrient) or toxic element. Margin between nutritional needs & toxic ability is very narrow.

WHY SE? From the field study, we observed:

- **maternal transfer** – correlation with toxic element (antioxidant function of Se) – significant level in egg yolk and eggshell – **SE DYNAMIC** (BODY REPARATION) AND **SPENT** (PHYSIOLOGICAL EFFECT) IN TURTLES ARE UNKNOWN

Method:

- Food transfer of Se in 130 freshwater turtles shared out in 2 groups (4 Se levels).
- Tissue collection at regular intervals.

Main discussion: (A) Se was detected in all collected tissues → turtles were able to accumulate Se.

(B) Se dynamic: 4 pattern than in birds but similar than in snake → a **regulation dynamic** of Se was suspected

(C) Internal tissues (kidney, liver, gonad) are directly involved in toxic administration process and are representative of the animal health. They are thus needed in ecotoxicological studies. However, such tissues can not be sampled from wild animals. The use of external tissues (carapace, skin, blood) for apprehending Se level in individuals represent a low invasive method useful on field. In the present study, Se levels in carapace & blood reflected those in kidney, liver and muscle.

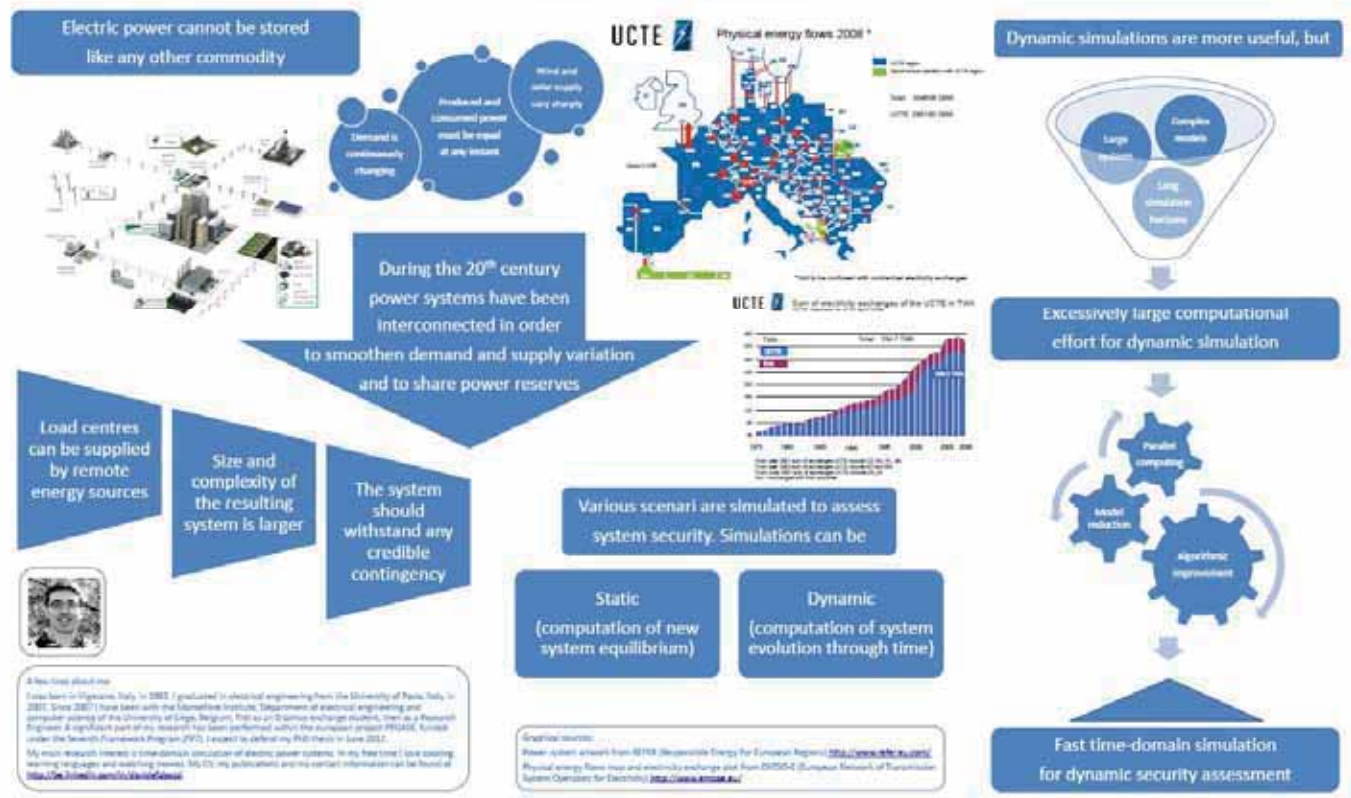
The use of tissue collected in a non invasive way is interesting in ecotoxicological studies since their pollutant levels potentially reflect those in internal tissues. Carapace and blood could be used as such but, as preliminary study, other investigations are needed to confirm our results.

Enzymatic analysis are currently in process and will allow to determine the cellular effect of Se.



Power system simulation challenges

Davide Fabozzi - European Doctoriales[®]
October 16th - 21st 2011, Ventron (France)



Modelling human metabolism

Keywords: metabolism, metabolic model, omics data integration, regulation of metabolic fluxes

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[CONTEXTUALIZATION]

1) Metabolism is the set of biochemical reactions occurring in living organisms and allows the sustenance of life.

2) The major players in metabolism are: enzymes – catalyzing conversion of molecules;

metabolites – enzyme substrates and products, intermediates of both degradation and synthesis processes.

3) Metabolism is complex and diverse – many reactions occur in a cell at any given time – it's difficult to follow up all the conversions and how they change with time!

4) To facilitate our understanding of metabolism, metabolic models – compilations of known biochemical reactions organized in metabolic pathways (sets of successive reactions) and described mathematically – have been developed.

Fig. 1: general representation of metabolism

Fig. 2: overview on glycolysis

Fig. 3: omics techniques profiling different cellular levels

Fig. 4: Pre-adipocyte human cell line (SGSB cells) differentiation into adipocytes.

Fig. 5: Flux predictions suggest an upregulation of cholesterol & fatty acid metabolism and TAG synthesis, consistent with known adipocyte function.

The method allowed for prediction of differences between pre-adipocytes and adipocytes biologically plausible.

A similar analysis can be used in different biological contexts (e.g. cancer vs normal cell metabolism) and provide hints on the most critical changes.

Future perspectives: combine additional omics data for validation of predictions (metabolomics) and description of regulatory hotspots (chipsseq data).

[Acknowledgment]

Thomas Sauter, LSRU, UniLU

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[References]

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[OBJECTIVE]

- To use metabolic models for integrating omics data and better describe metabolic processes and disease-associated changes.

[APPLICATION #1]

Metabolic changes upon fat cell transformation (SGBS cells)

Fig. 4: Pre-adipocyte human cell line (SGSB cells) differentiation into adipocytes.

Fig. 5: Flux predictions suggest an upregulation of cholesterol & fatty acid metabolism and TAG synthesis, consistent with known adipocyte function.

The method allowed for prediction of differences between pre-adipocytes and adipocytes biologically plausible.

A similar analysis can be used in different biological contexts (e.g. cancer vs normal cell metabolism) and provide hints on the most critical changes.

Future perspectives: combine additional omics data for validation of predictions (metabolomics) and description of regulatory hotspots (chipsseq data).

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[References]

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Thesis director: Jacques Walter

A Comparative typology of Internet Usages and Dependence of Iranian and French users

(A comparative study between students of Tehran and Paul Verlaine universities)

perceptions and expectations of use

Social and demographic variables

place of access and period of leisure time

Environmental and economic factors

The device and its applications

The individual characteristics

Manner of Internet access

Types of Internet Usages

communicative function

informative function

leisure function

Facultative Usage

on line game dependence

gaming dependence

dependence

dependence

dependence

dependence

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dependence

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Dynamics of trace metals in marine mammals

fnfs
Université
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Sarah HABRAN

Marine mammals can accumulate high levels of contaminants due to their top position in the food chain and due to their long life span. This project studies the transfer and dynamics of trace metals during particular periods of the life cycle in true seals. These periods occur when seals come ashore to give birth, to suckle their young, to molt or after weaning. All these periods involve fasting of food and water and last from some days to several months according to species.



Investigations were performed in 2 species:

- 1) the northern elephant seal from California and
- 2) the grey seal from Scotland.

In elephant seals, adult females suckle their young during 4 weeks. Then pups are weaned and undergo post-weaning fast period up to 2.5 months. In grey seals, lactation lasts 3 weeks and post-weaning fast lasts up to 4 weeks.

Trace metals were analyzed in the laboratory of Oceanology (ULg). Essential (Zn, Cu, Fe, Se, Cr, Ni, V) and non-essential metals (Cd, Hg, Pb) were determined in non or less-invasive tissues of alive seals, i.e. blood, blubber, milk and hair samples.



Total Hg (µg/kg ww) in blood and milk of northern elephant seals during the lactation period (n = 10).

The maternal transfer of trace metals to offspring is also investigated. As shown in the figure, trace metals such as Hg are efficiently transfer to offspring. It appears that a high transfer occurs during gestation through the placenta since pup levels were high in early lactation. Mercury was also detected into the milk, but levels were low. Thus, toxic metal transfer occurs in early stages of development and is added to those of organic pollutants previously described. Similar transfer and dynamics were observed in grey seals, but at lower levels.

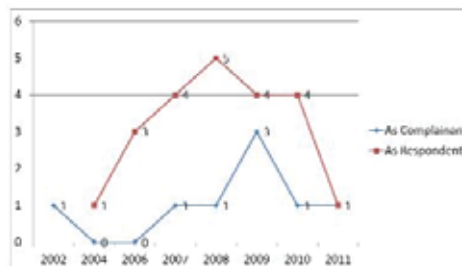
Levels are not stable, they can vary during short period such as lactation (see figure). Therefore these physiological processes need to be considered carefully when interpreting trace metal levels in the framework of biomonitoring.

sarah.habran@gmail.com

The Influences of WTO Dispute Settlement Mechanism in China

Yulin He, Saarland University

The Trend of China's activities in DSM



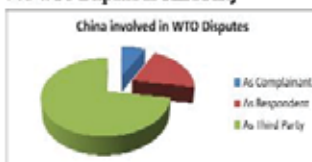
Introduction of the topic

- This is the 10th year of China's entry into the WTO
- Joining the WTO means that China commits itself into Dispute Settlement Mechanism (DSM)

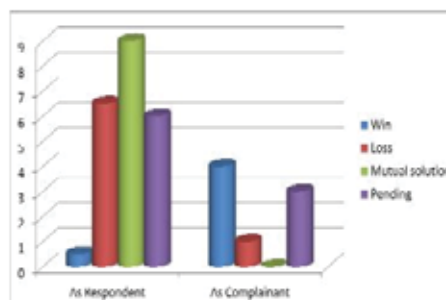
- China's attitude has changed from passive to active in the DSM
 - ❖ More involvements in the WTO Disputes
 - ❖ Promote the negotiation process of the Dispute Settlement Understanding
 - ❖ Provide more elite Chinese legal experts to DSM
 - ❖ Strengthen national WTO legal capacity

The overview of China's involvement in the DSM

- **Statistic:**
 - ❖ 108 WTO Disputes in total
 - ❖ 8 WTO Disputes as Complainant
 - ❖ 22 WTO Disputes as Respondent
 - ❖ 78 WTO Disputes as Third Party



Result of the Disputes



Analysis of typical China WTO Disputes

- **China – Intellectual Property Rights**
- **China – Raw Materials**
- **China – Audiovisual Products**
- **China – Auto Parts**
- **EU – Fasteners**
- **Research to be continued...**
- **Find out the Impacts of WTO Disputes on China**
 - Economical Aspect
 - Legal Aspect
 - Political Aspect
- **Find out future steps of China in the DSM**

Introduction

- Blast furnace yearly liquid iron production: approx. 500 Mio. t (2005)
- Blast furnace process: Solid iron oxides + CO, H₂, C → liquid iron
- Process is difficult to observe/measure because of:
 - > Poly-dispers granular raw materials: coke and iron oxides
 - > High temperatures: 200-2000 °C
 - > Multiphase flow (gas, liquid, solid, dust)
 - > Chemical aggressive atmosphere (CO, CO₂, H₂ and others)

→ Computer simulations based on chemical and mathematical models deepen knowledge about the processes involved

Objective

- Apply a numerical simulation technique called Discrete Particle Method (DPM) to predict behavior and flow of granular material during charging and flow through reactor. Dynamics based on Newton's laws of motion:

$$m_i \frac{d^2 \mathbf{r}_i}{dt^2} = \sum_{j=1}^N \mathbf{f}_{ij}(\mathbf{r}_i, \mathbf{v}_i, \mathbf{r}_j, \mathbf{v}_j, \mathbf{a}_i) + \mathbf{f}_{i,external}$$

$$\mathbf{f}_{ij} = \frac{d^2 \mathbf{r}_{ij}}{dt^2} = \sum_{k=1}^N \mathbf{f}_{ijk}(\mathbf{r}_i, \mathbf{v}_i, \mathbf{r}_j, \mathbf{v}_j, \mathbf{a}_i) + \mathbf{f}_{ij,external}$$

- Apply Discrete Particle Method (DPM) to predict the chemical reduction of iron oxide to iron and gasification of coke particles using a chemical reaction model:

$$\frac{\partial \sum_i \rho_i \mathbf{r}_i}{\partial t} = \frac{1}{r} \frac{\partial}{\partial r} \left(r^2 \frac{\partial \mathbf{r}}{\partial t} \right) + \sum_{i=1}^N \mathbf{a}_i$$

$$r \frac{\partial \rho_i}{\partial t} + \frac{1}{r} \frac{\partial}{\partial r} (r^2 \rho_i \mathbf{r}) = \frac{1}{r} \frac{\partial}{\partial r} \left(r^2 \frac{\partial \rho_i}{\partial t} \right) + \sum_{i=1}^N \mathbf{a}_i$$

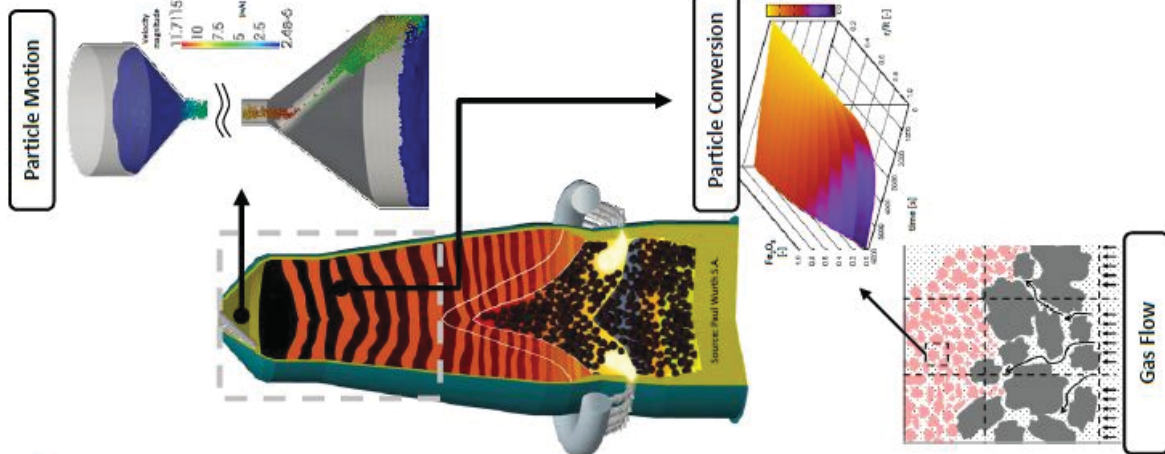
$$\frac{d\mathbf{c}}{dt} = \mathbf{k} \cdot \mathbf{c}^n \cdot \mathbf{c}_0^n$$

- Couple DPM with open source Computational Fluid Dynamics (CFD) code to account for gas flow between particles and allow heat and mass transfer between gas and particles:

$$\frac{\partial \rho \mathbf{c}}{\partial t} + \nabla \cdot (\rho \mathbf{c} \mathbf{v}) = -\nabla \cdot \mathbf{q} + \mathbf{r} \cdot \nabla \cdot \mathbf{q}^*$$

Preliminary results:

- Single particle reduction kinetics where compared with experimental data and successfully validated
- Discrete Particle Method (DPM) was successfully coupled to computational Fluid Dynamics (CFD) code OpenFOAM



Context

- The project MORFEO [2]
- Design new technologies for the capture and for the analysis of dynamic surface evolution using visual data acquired by cameras
- Multi-view stereopsis: coherent information produced by joint scenes to reconstruct the 3D shape
- Visual hull: the maximal object that gives the same silhouettes from any possible viewpoints



Objective

- To produce the input for the analysis
- Develop a representation of the geometry as 3D mesh
- Reconstruct them from segmented images
- Temporally coherent 3D mesh
- Add time as an fourth dimension to the 3D shape
- To achieve the temporal coherence
- Add the motion information about the representations



Figure 3: Motion by feature flow

Method - Static visual hull

- Construct a set of 3D points
- (1) Take 2D points inside the white zone of segmented images
- (2) Project these 2D points back to the 3D coordinate system
- Reconstruct the mesh from these 3D points
- Reconstruct Visual Hull
- Optimize some criteria
- Sampling order points



Method - Centroidal Voronoi tessellation [1]

- Given $T = \{x_i\}_{i=1}^N$ belongs to the domain Ω
- Voronoi tessellation $\{V_i\}_{i=1}^N$ corresponding to $\{x_i\}_{i=1}^N$
- $V_i = \{x \in \Omega \mid |x - x_i| < |x - x_j| \text{ for } j = 1, \dots, N, j \neq i\}$

- The energy function

$$F(T) = \sum_{i=1}^N F_i(T_i) = \sum_{i=1}^N \int_{V_i} |x - x_i|^2 dx = \int_{\Omega} |x - x_i|^2 dx$$

- $\{V_i\}_{i=1}^N$ is a centroidal Voronoi tessellation if T_i is a minimizer of $F(T)$



Figure 6: Centroidal Voronoi tessellation

Method - Lloyd's method [1]

- Initialize: Select an set of k points $x_i = (x_i, y_i)_{i=1}^k$
- At the loop k
- (1) Calculate the Voronoi tessellation $\{V_i\}_{i=1}^k$
- (2) Calculate the mass centroid of Voronoi regions
- (3) Calculate the mass centroid of the previous
- (4) Stop the mass centroid in the previous
- (5) Iterations if the convergence criterion is satisfied



Figure 8: Lloyd's method

Method - Temporal visual hull

- Add the temporal coherence to the shape
- Since the points of the mesh in the mesh evolution
- Improvements
- Use the color image instead of segmented images to improve the fidelity of data
- Colors
- Texture
- Improves the criteria of sampling property
- Maximize the determination of topology

[1] G. B. Lloyd, and M. G. Borge, Centroidal Voronoi tessellations: Applications and algorithms, SIAM Review, 41(4):501-519, 1999.
[2] Morpho project, funded by the French National Research Agency www.morpho-project.fr
[3] Morpho, www.morpho-project.fr
[4] Morpho project, funded by the French National Research Agency www.morpho-project.fr
[5] D. M. Yip, W. Wang, B. Lévy and Y. Liu, Efficient Computation of 3D Clipped Voronoi Diagrams, SMP 2011, Lecture Notes in Computer Science, 2011.

About me

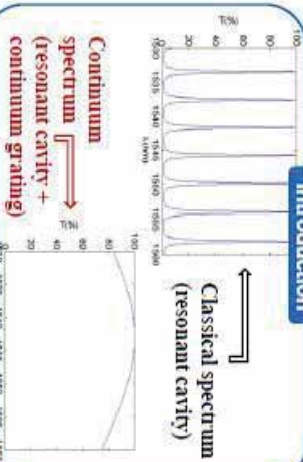
Romanian, 27 years old
Not married
Start of thesis: 1 year ago
Conferences:
NTSOD 2011, SPIE 2012



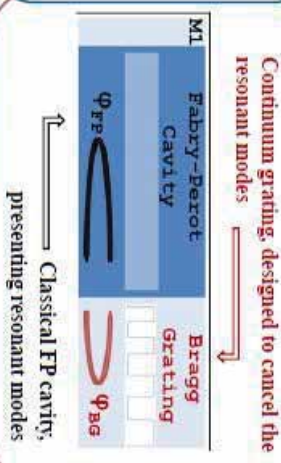
Abstract

We study the possibility of obtaining a Continuum spectrum in a Fabry-Perot (FP) cavity bordered by a random Bragg Grating. In this poster, the new proposed structure is shown and one of the algorithms (the Genetic Algorithm) used for its design is explained. In the results section, the reflection spectra of two synthesized gratings are presented.

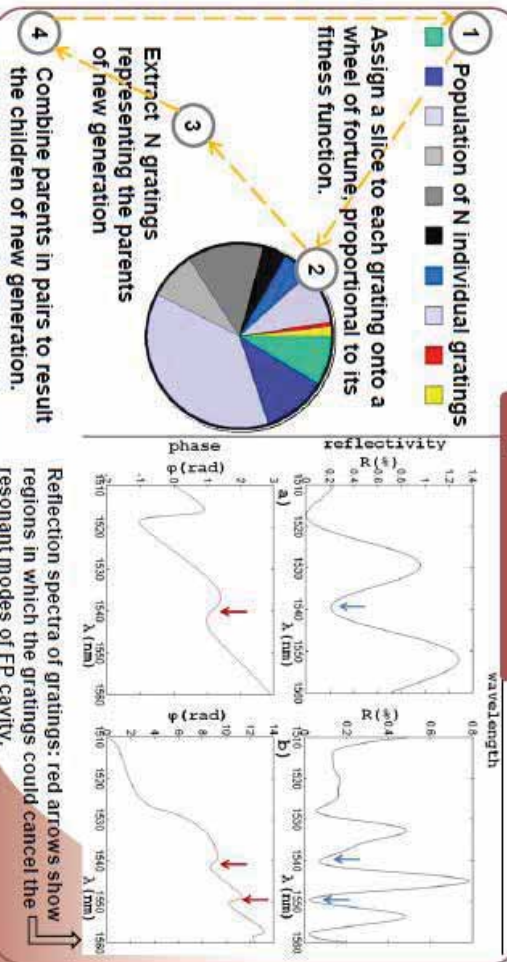
Introduction



Structure



Algorithm and Results



Conclusion

We tried for the first time to cancel the resonant modes in a FP cavity by Bragg grating synthesis. The reflection spectra of the gratings thus obtained do have regions where they could cancel the resonant modes (red arrows) but only these regions correspond to small reflectivities (blue arrows).

ITA Bergman, et al. "Using Finite Element by Active Wave-Number of External Cavity Laser Including a Linear Chiral Fiber Bragg Grating", IEEE Journal of Selected Topics in Quantum Electronics, Vol. 5, no. 3, p. 1118, September-October 2001.

CPJ Shaw and K. M. Rank, "A Genetic Algorithm for the Inverse Problem in Synthesis of Fiber Bragg Gratings", Journal of Lightwave Technology, Vol. 18, no. 10, October 2000.

REVOLUTION AND CONTEMPORARY HISTORY: 19TH CENTURY MEMOIRS OF THE FRENCH REVOLUTION

After the upheaval in Tunisia, Egypt, Libya and other Arabic countries, the relationship between **Revolution**, **Testimony** and **History** is back on the political agenda. Newspapers and politicians all over the world mention "historical moments" and compliment "twitter-" and "facebook-revolutions". But how does a Revolution enter into **individual biographies** and **national history**?

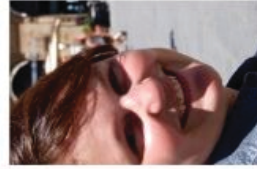
Understanding a Revolution not simply means to ascertain what has happened by telling facts. We also need to know how the **big event** that we call a **Revolution** is built out of countless **micro-events** narrated by contemporaries.

My thesis challenges the Revolution as an event that is partly created **in retrospect**. By doing so, it brings new evidence on the center of reference of all modern revolutionary movements - the "great" **French Revolution of 1789**. With the help of the most voluminous collection of Memoirs published the 1820s, I point out the **editorial context**, the **form and content** of the Memoirs, the **reader's reactions** and the **appropriations** of individual narratives by the first historians of the French Revolution.

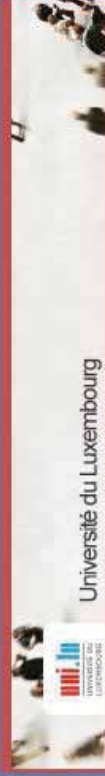
I argue that the written **Memoirs** of actors and witnesses played an essential role in constructing the Revolution as a dramatic and outstanding event in French history. The emergence of individual writings on **self-experienced history** characterizes, in particular, the French Revolution and, in general, **Revolutions** as historical events and historical narratives

Globalizationdiscourses and National Symbols

in Contemporary Luxembourgish Literature



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 Laura.Lakaff@uni.lu



Université du Luxembourg

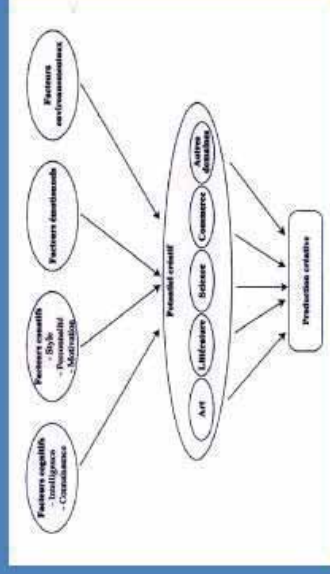
Creativity and Intelligence: Optimal Exploitation of the Potential

Project of Christiane Kirsch

I'm a Psychologist and Art therapist with professional dancing experience. Thus, the analysis of creativity is situated at the interference of my two domains of specialization and enables me to establish a fertile connection between research and practice.

Our anticipated study can be clearly situated in a multivariate approach of creativity, by taking into account as well cognitive as personality factors as predictors of creativity.

Multivariate approach to creativity, Lubart (2005)



Furthermore, it will evaluate the interplay and the relative impact of the different factors in predicting creativity, not only in terms of multiple regressions but also by means of different multivariate models, which refer to a special constellation of the various factors.

Accordingly, by taking into account the existing literature, this research proposal is ground-breaking in the way that it consists in the verification of two innovative and one existing multivariate model, which have never been empirically tested before. Furthermore, these different models will be set into comparison to one another and concave for an optimal prediction of creative behavior.

supervised by Prof. Dr. Claude Houssemand and Prof. Dr. Todd Lubart.



Understanding and Improving Solar Cells

jes.larsen@unil.lu

Why?



Renewable energy needed



How?

Material preparation

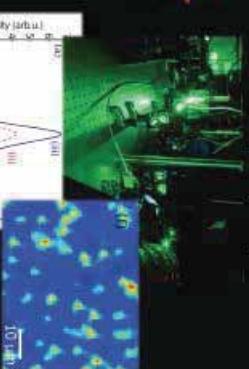


Measure



Adjust parameters

Study of quality



Who?

Jes Larsen
PhD student in the Laboratory for Photovoltaics

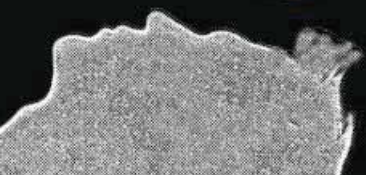


Past: M.Sc.

Nanotechnology



Also : I like photography



Université de Lorraine

Superconductivity: principles and applications.

J. Leclerc, PhD Student, 2nd year

Mail: julien.leclerc@green.unp-nancy.fr

Groupe de Recherche en Électrotechnique et Électronique de Nancy
Université Henri Poincaré Nancy 1, BP 70239, 54506 Vandœuvre-lès-Nancy, France

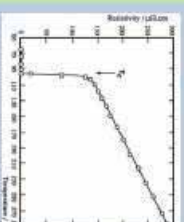


Superconductivity principles

Superconducting material



Cooling at very low temperatures (below T_c)



Disappearance of the electrical resistance
→ High current flow capacity without losses

Thesis subject

Title: Methods and tools for electric and magnetic characterization of superconductors.

Abstract: The development of new superconductors such as YBCO film, allow to consider new applications or to improve the performance of existing devices. For the study of these applications, it is necessary to know the electrical and electromagnetic characteristics of these new materials. For superconductors, the difficulty lies in the reconstruction of the local $E(J)$ law from measurements. The thesis consists in the development of theoretical and experimental tools for the characterization of superconducting materials.

Applications of superconductivity

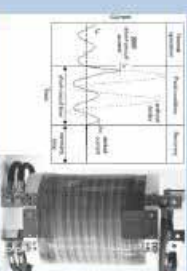
Superconducting levitation



Power transmission



Fault current limiter



Superconducting motor



High magnetic field generation for MRI and Power generation (ITER)



Particle accelerators

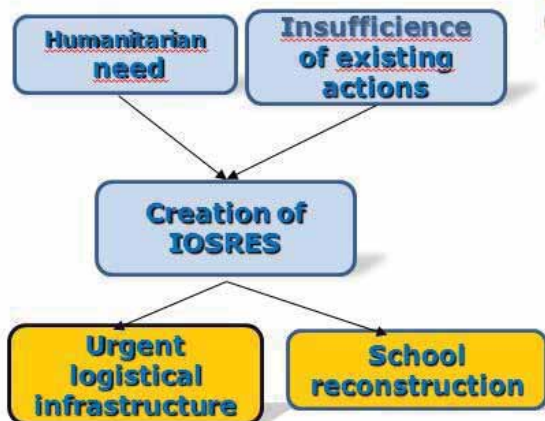




Save my school, it's my future

Save my school, it's my future

Context and justification



Action strategy



I.O.S.R.E.S, Ecole de Jussac
87310 COGNAC-LA-FORÊT
E-mail : iosres.team@gmail.com
Tell : (33)6 74 55 76 14

1

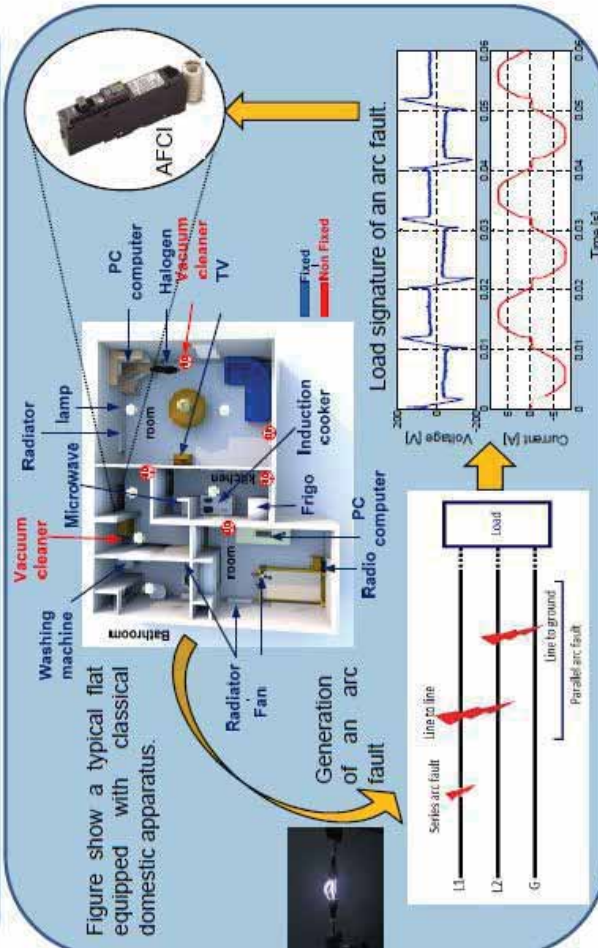
Arc Fault Detector for Domestic Applications

Jinni Lezama

Laboratoire d'Instrumentation Électronique de Nancy, France
jinni.lezama@ien.utp-nancy.fr

Introduction

An arc fault is an accidental arc electric occurring in somewhere unexpected, this can cause irreversible damage to electrical system, an sometimes can generate fire in home. The detection of the arc fault is of great importance in the electrical installation. In order to protect domestic installation, you can use AFCI (arc fault circuit interrupter) circuit breaker, which are devices that detect electrical arc fault.



Perspectives

Development of an algorithm for the detection of an arc fault.

This work is supported by Hager Group.

Combinatorial microRNA regulation during adipogenesis: a systems biology approach

Karen Linhardt*, Moritz Hübner*, Lutz Suckewer* and Thomas Sauter*

*University of Lüneburg, LSRI, Systems Biology Group
*University of Lüneburg, Lüneburg Center for Systems Bioscience



Introduction I

Name & Title: Maria Linhardt (MS)

Nationality: German
Birth date & place: 22.07.1986, Tübing, Germany

Education:

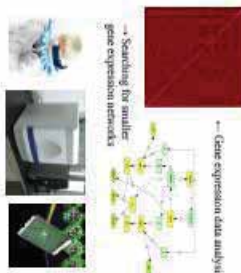
• PhD project in the Systems Biology Group (2011-13)
University of Lüneburg (Lüneburg)



- Master in Integrated Systems Biology (2009-2010)
University of Lüneburg (Lüneburg)
- Bachelor in Environmental Science (2004-2008) Fern
University (Erfurt)
- Interests: discovering new habitats and creating birds
within scientific projects



Workflow



1. Stripping the system with ordinary differential equations in a systems biology language



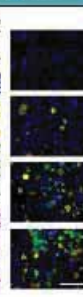
Introduction II

Adipogenesis

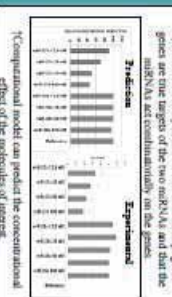
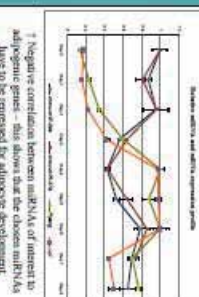
Adipogenesis is the specific maturation process of mesodermal stem cell-derived adipocyte precursors (pre-adipocytes) in mammals. The white fat tissue acts as an energy depot as well as a signaling organ and constitutes ~20% of our body weight. It is increasingly agreed upon that due to a lack of exercise and caloric-rich food intake, an accumulation of adipose tissue leads to obesity. Obesity is associated with an increased risk for many diseases, such as type 2 diabetes and increased fat mass will negatively affect other metabolic organs, both health and individual well-being in general.



Regulation of being a major contemporary research issue has been the interconnection of gene regulatory factors in a well-posed issue. This fact is also well reflected in the lack of treatments for decreasing adiposity.



Results



Introduction II

microRNAs

MicroRNAs (miRNAs) are short ribonucleic acid (RNA) molecules that were discovered in the end of the 20th century and have emerged as a new complex layer of regulatory mechanisms in the genome. They are involved in the regulation of gene expression by interacting with target mRNAs, leading to their degradation or translational repression. This process is often referred to as post-transcriptional gene silencing. miRNAs play a crucial role in various biological processes, including cell differentiation, proliferation, and apoptosis. Dysregulation of miRNAs has been linked to several diseases, including cancer, cardiovascular disease, and metabolic disorders.

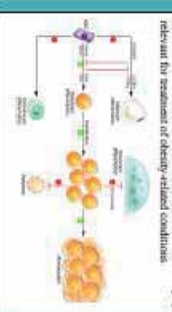


My project is focused on analyzing the influence of miRNAs on the expression of genes involved in adipogenesis. Specifically, we are interested in the role of miR-27a and miR-27b in the regulation of adipogenic genes. We have performed experiments to measure the expression levels of these miRNAs and their target genes in adipogenic cells. Our results show that miR-27a and miR-27b play a significant role in the regulation of adipogenesis. We are currently working on identifying the specific target genes of these miRNAs and understanding the underlying molecular mechanisms.

Conclusion & Future plans

miR-27a and miR-27b are known to be involved in the regulation of adipogenesis. We have shown that these miRNAs play a significant role in the regulation of adipogenic genes. Our results suggest that miR-27a and miR-27b may be potential targets for the treatment of obesity and related metabolic disorders. In the future, we plan to perform further experiments to validate our findings and to identify the specific target genes of these miRNAs. We also plan to investigate the role of these miRNAs in other biological processes and to explore the potential of miRNA-based therapies for the treatment of various diseases.

Next we will study the effect of miRNAs on the actual catalytic activities of lipogenesis. We will use the results of our findings to design a model of the lipogenesis process. This model will be used to predict the effect of miRNAs on the lipogenesis process and to identify the key regulatory factors. We will also perform experiments to validate the model and to identify the key regulatory factors.



Used references:

1. Stone and Stephens 2006
2. The Lipid Metabolism
3. The Lipid Metabolism
4. The Lipid Metabolism

For further information

more information on the project, please contact the author. You can find more information on the project at the following link: <http://www.lipid-metabolism.com>

Numerical methods for optimization in finance: optimized hedges for options and optimized options for hedging

Pierre and Marie-Cécile Curcio University of Augsburg

I. Optimized hedges for options

I.1. A basic problem in finance

Consider an agent who is selling European put option at time 0. The option has underlying asset S , maturity T , strike K and payoff function $P(x) = \max(K - x, 0)$. The selling price is P_0 . The option gives the holder (buyer) the right, but not the obligation, to sell one share of S for price K to the agent at time T . If the stock price at time T , S_T , is below K , the holder will exercise the option. If $S_T > K$, the option will expire worthless.

While the holder can lose at most the premium, the agent may lose up to $K - P_0$ at maturity. The agent has lower risk aversion and thus wants to hedge his position, i.e. he wants to reduce the risk. To this end he decides to set up a hedge portfolio V . He has to fix the ingredients (which hedging instruments?) and he has to fix his trading strategy (what is an optimal one?).

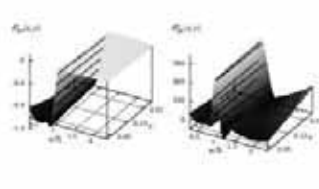
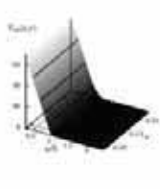
I.2. Optimal dynamic hedging

The agent identifies the risk sources and determines the hedging instruments accordingly. The risk sources are the asset price $(S_t)_{t \in [0, T]}$ and the variance of the asset price $(\sigma_t^2)_{t \in [0, T]}$. The agent decides to hedge with two instruments: with the underlying asset to hedge price risk and with a variance swap V to hedge in part volatility (variance) risk and in part price risk.

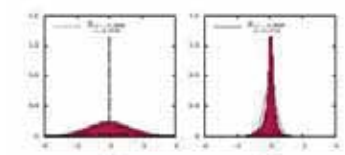
for a strategy which is such that the portfolio value at time T is equal to $H(S_T)$. The strategy is hence dynamic in discrete time and replicating. The theory called local risk minimization provides a criterion for the optimality of such a hedging strategy. The problem, however, is the computation of (an approximation to) an optimal strategy in this framework. Fortunately, there is a versatile numerical method which gives rise to an efficient algorithm for this purpose ([1,11]). The method is based on Monte Carlo simulation and is therefore called the hedged Monte Carlo method.

I.3. Numerical results

The agent uses the hedged Monte Carlo algorithm to compute his hedging strategy. At time $t = 0$, he has to determine $\phi_{1,0}$ (the share of S in the hedge portfolio) and $\phi_{2,0}$ (the share of V in the hedge portfolio). The value of the hedge portfolio at time $t = 0$ is denoted by V_0 . The figures on the right show the portfolio value and the hedging for $K = 1$ as a function of the asset price x and the variance σ^2 .



The agent knows that the hedge portfolio is not self-financing, i.e. cash can flow in and out of the portfolio when it is rebalanced. He makes profit if $\Delta C := V_T - V_0 - \int_0^T \phi_{1,t} dS_t - \phi_{2,t} dV_t > 0$ where $\Delta X_{t+1} := X_{t+1} - X_t$ and $X := (S, V)$. He makes loss if $\Delta C < 0$. The agent estimates the probability distribution of ΔC by simulation (figure on the right). For comparison, he computes the hedging strategy for $X := S$ (hedging solely with the underlying asset) as well and examines subsequently the distribution of ΔC (figure on the left). The figures show that the hedging strategy is much less risky if $X := (S, V)$ than if $X := S$.



II. Optimized options for hedging

II.1. Problem description

Consider an agent who holds a portfolio Π which consists of $\alpha = (\alpha_1, \alpha_2)$ stocks $S = (S_1, S_2)$. He expects that the stock prices will decrease in the near future but he does not want to let it be not allowed to sell his stocks. The positions $\alpha = (\alpha_1, \alpha_2)$ might be thus large that he will push the stock prices down if he sells the stocks, there could be too large of α is obliged to hold the stocks for a certain period etc. The value of the portfolio at time t is

$$\Pi_t = \alpha_1 S_{1,t} + \alpha_2 S_{2,t}$$

The delta of the portfolio is

$$\Delta \Pi_t = \Delta \Pi = \begin{pmatrix} \alpha_1 \\ \alpha_2 \end{pmatrix}$$

II.2. Optimal control approach

We consider a European double barrier knock-out call option on the basket (S_1, S_2) . The option has maturity T , strike K and barriers B_{low} and B_{high} . If the option is active as maturity the payoff is K and otherwise the payoff is 0. The option becomes inactive once $S_1 < B_{\text{low}}$ or once $S_2 > B_{\text{high}}$ where $B_{\text{low}} < B_{\text{high}}$. The instant when $B_{\text{low}} < S_1$ the first time, a rebate is paid. As the lower barrier the rebate is zero.

II.3. Numerical results

We compare an optimized European double barrier basket option with a non-optimized one. The two figures of the left show the payoff function of the optimized respectively the non-optimized option. Their price at time $t = T/2$ is visualized in the second figure from the right (see

is constant. To reduce the sensitivity of the portfolio value to variations in S , the agent decides to hedge his portfolio with a financial derivative. Ideally, the derivative should have delta $-\Delta \Pi$. One way to achieve this is to sell futures on S_1 and on S_2 but this has several drawbacks. (i) there is a requirement to provide an initial margin and a safety margin to the clearing agency (ii) additional margins have to be paid if the implied stock volatilities increase.

Selling call options might be an alternative. Standard call options, however, have no constant delta and this would require to adjust the position continuously. It would be more appealing to sell call options which have (almost) constant delta. But, how does such an option has to look like?

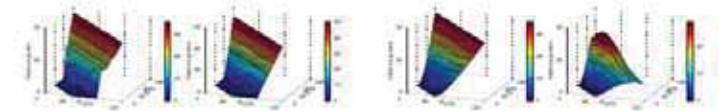
(Fortunately, the agent got to know about an optimal control approach which allows to determine options with almost constant delta ([6,11]).

We parameterize the payoff function by $u = (u_1, \dots, u_n)^T$, i.e. $H(x) = H(x)$. We set the rebate (at the upper barrier) to u_n . The set of admissible parameters (controls) is U_{ad} . Let μ_D denote the Black-Scholes price of the barrier option in $Q = (0, T)$ where D is the domain between the barriers. To express the dependence of (the stock) μ_D on x , we write $\mu_D = \mu_D(x)$. Let $\Delta^2 = (\Delta_1^2, \Delta_2^2)^T$ be the desired delta of the option. The problem is then to find $u \in U_{\text{ad}}$ such that

$$H(x) = \frac{1}{T} \int_0^T \mu_D(x) dt - \Delta^2 \Delta \Pi$$

achieves its minimum.

lowest case) and in the right figure (non-optimized case). We can observe a significant difference in the delta. In the non-optimized case, the delta is varying considerably and can even take negative values.

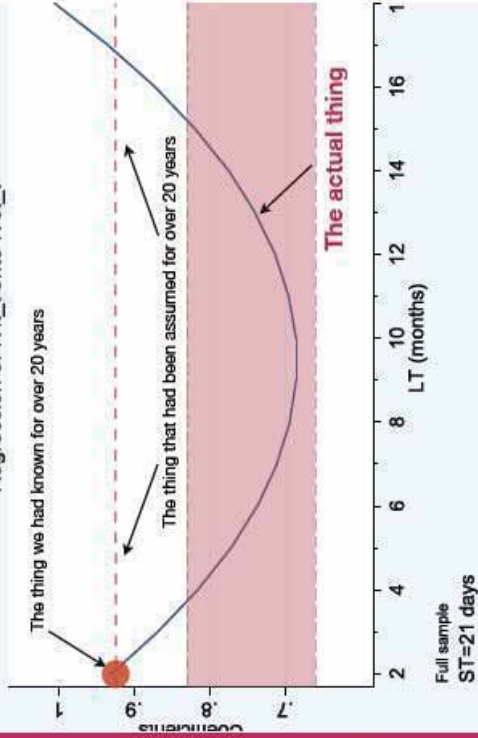


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Stein's first test of overreaction

Regression of IV_{it} onto IV_{st-t}



"Implied Volatility" refers to the amount of volatility included in the price of an option. The more volatile the underlying asset, the higher the implied volatility (which in turn increases the option price). Martelin, 2011

Overreaction in the Options Market

Redefining the notion of time

by Nicolas Martelin



Jeremy Stein found out in 1989 that investors in the options market tend to overreact - in the "long run" - to the breaking of news affecting the underlying of the options.

In other words, people on that market seem to behave in a non-rational, non-bayesian way: Homoeconomicus doesn't trade options?!

Stein had only a look at the investors' behaviors at time $t+1$ month (what he called "long run") but assumed that the observed behavior (overreaction) would hold and remains constant over time.

The "normal" range of investors' reactions is derived from a mathematical model. Within that range, normal reactions are observed; above the upper level, there is overreaction; under the lower level, under reaction.

The actual thing

By only looking further up in time (up to $t+18$ months), we discovered that the overreaction assumption of Stein, that everyone has taken for granted, was actually far from the truth. The more people have a large time frame in mind, the more "rational" they get... until a certain point in time (around 9, 10 months) where uncertainty seems to take over...

Use of Sun to Treat Drinking Water



- Put clear water into a PET bottle.
- Shake it up well to oxygenate it
- Put it out in the sun for 6 hours



Combination of UV-A light, Oxygen and 6 hours Sun heat kill pathogens present in water



Safe drinking water

Geo-Based Semantic Image Annotation

Background

Millions of images are produced daily. The **Semantic Gap** still exists, i.e., serious retrieval challenge

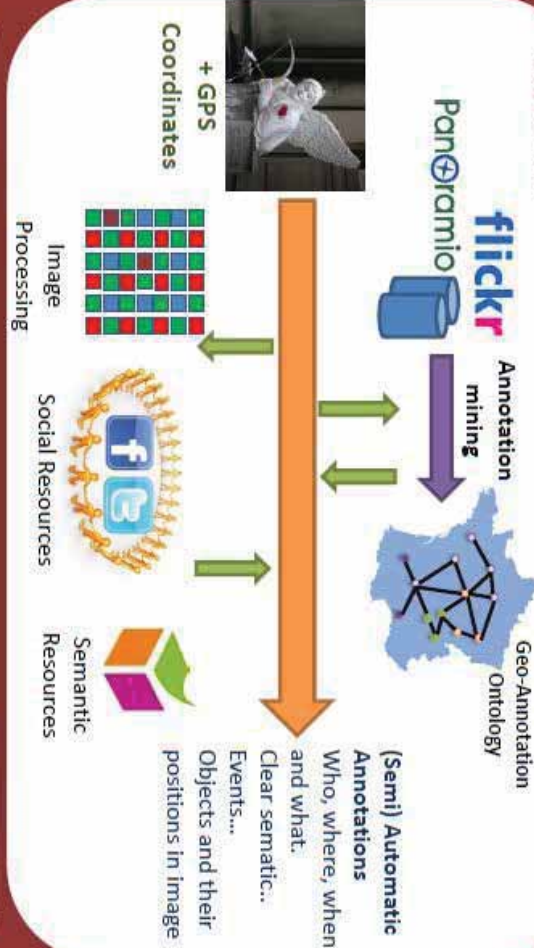
Idea

"A Picture tells a thousand words"... Inferring some of those words **automatically** and using them to **annotate** images



Time
Remember less

Approach



M.Sc. Hatem Mousselly Sergieh
PhD Candidate
Universität Passau, Germany
INSA de Lyon, France

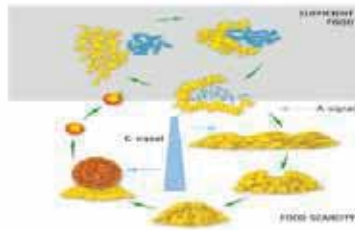


PhD thesis: System's Biotechnology of Myxobacteria

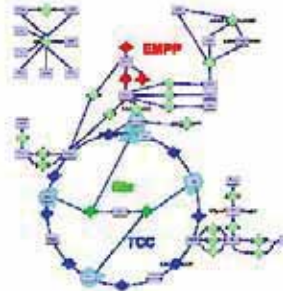
Department of Biochemical Engineering Saarbrücken, Germany



Soil bacteria of *M. xanthus* DK1622 grow on agar plate („Petri Dish“) by swarming

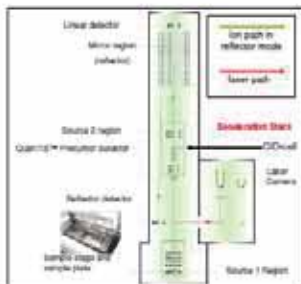


Life cycle of *Myxococcus*: The bacteria nourish on micro cells; in case of starvation, they undergo a cycle with fruiting bodies and myxospores

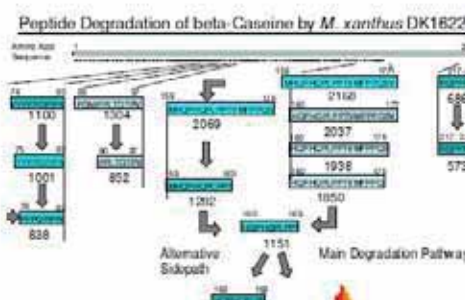


René Pietsch,
Dipl.-Biotechnol.

Central Metabolism: Some amino acids can be taken up and converted to energy in the tricarboxylic acid cycle (TCC), others can only be used to build new cells (biomass, BM).



In Matrix-assisted Laser-Desorption/Ionisation Mass Spectrometry (MALDI-MS) sample molecules are accelerated in vacuum. Via the time of flight the exact mass is calculated.



Peptide Degradation: *Myxococci* nourish best on peptides of milk proteins like beta-caseine which are degraded extracellularly by secreted proteases. Then smaller peptides are taken up.

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Department of Biochemical Engineering
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Finite Elements and Energy Driven Motions



Figure 1: A plot showing the energy landscape of a system.

When a physical process is subject to a force, the energy of the system, the motion of the minimizing action is always in the direction of the steep descent in the energy landscape.



Figure 2: A plot showing the energy landscape of a system.

From physics to mathematics. We start by adapting these principles to compute numerical simulations, i.e. computer simulations that approximate the reality. The next step is to study for a large variety of problems the structure of the energy landscape.

• The structure of the energy landscape, e.g. the topology.

• Allow only for finitely many functions on every triangle.

As a consequence, the numerical approximation, for example, only computes the solution of a problem only on a finite number of triangles. This is the essence of the finite element method, which is a numerical method for solving problems in engineering and science that is applied to the midpoint.

Typical questions that arise:

- How does the finite element method converge to the real physical model?
- Do finite element minimizers converge to a minimizer of the physical model?



Figure 3: A sequence of four images showing the convergence of a finite element approximation.

Applications from Biomechanics

The question of how to predict the shape of a cell has inspired a significant body of research in the past years, ranging from purely mathematical approaches to numerical simulations. One of the first results in this field was due to W. H. Murray (1972).

Modeling a cell.

The surface of a cell consists of lipid molecules (long molecules with a polar head and a non-polar tail) that order themselves into membranes, made of two layers.



Figure 4: A 3D visualization of a lipid bilayer membrane.

- The total area of the surface is constant, i.e. no molecules slip out of the surface.
- The curvature of the cell is constant, i.e. the cell is spherical.

• The membrane tension to minimize the curvature, i.e. bumps or scars peaks are energetically unfavorable.

Numerical for Biomechanics.

We assume that shapes which have been observed by biologists are minimizers of the energy proposed by Murray. Therefore, we are interested in a finite element method which computes minimizers of the energy. One possible approach is to use:

- Start with a triangulated surface.
- Compute the direction of steepest descent in the energy landscape, i.e. towards the bumps and peaks under the side condition of conservation of area and volume.
- Go one step into the computed direction and obtain a new surface with lower energy.

• Iterate the last two steps until the energy or the surface shape converges.

Output: Triangulated surface, approximating a minimizer of the energy.

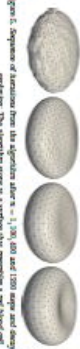


Figure 5: A sequence of four images showing the convergence of a finite element approximation.

Scoop Bubbles and Surfaces of Prescribed Curvature

The so-called Plateau problem of filling the surface of a given loop with a surface that has no curvature bubble inside is a classical problem in physics. The problem has a lot of applications, ranging from soap bubbles to modern architecture.

One of the most well-known examples in architecture is the Olympic stadium in Munich. When analyzing the stadium, one can see that the surface of the stadium is a surface of prescribed curvature. This is a surface that has a constant curvature, which means that the surface is a sphere or a part of a sphere.



Figure 6: A photograph of the Olympic stadium in Munich.

Using Finite Elements we are able to construct surfaces of prescribed curvature for various loops and curves.



Figure 7: A sequence of four images showing the convergence of a finite element approximation.



Figure 8: A sequence of four images showing the convergence of a finite element approximation.

Liquid Crystals

We are further interested in understanding the theory of liquid crystals (LCs). The interesting field of modern physics begins to enter the stage in many ways, mostly in the form of LC displays.

Liquid crystals consist of rod-like molecules with a head-to-tail symmetry. If so, the head and tail were unchanged they would still work. This primary head-tail symmetry is emphasized in mathematical models for liquid crystals.

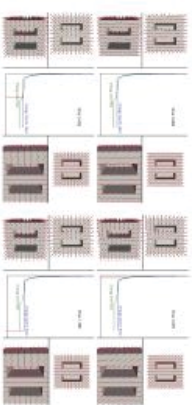


Figure 9: A sequence of four images showing the convergence of a finite element approximation.

References

- [1] Murray, W. H. (1972). The shape of liquid crystals: theory and possible experiments. *Nature*, 232, 591-594.
- [2] Murray, W. H. (1972). The shape of liquid crystals: theory and possible experiments. *Nature*, 232, 591-594.
- [3] Murray, W. H. (1972). The shape of liquid crystals: theory and possible experiments. *Nature*, 232, 591-594.
- [4] Murray, W. H. (1972). The shape of liquid crystals: theory and possible experiments. *Nature*, 232, 591-594.
- [5] Murray, W. H. (1972). The shape of liquid crystals: theory and possible experiments. *Nature*, 232, 591-594.

2011 Institute for Numerical Simulation

An Advanced Experimental Approach Towards Design of A Novel Lanthanum-Doped Lead-Free Solder

Submitted by: M. Muhammad Sadiq

University of Paul Verlaine Metz and Georgia Tech Lorraine

Project Supervisors: M. Mohammed Cherkaoui and M. El Moudjah Doya

Abstract

Lead-based solders are used for 2000 years in many electronic devices. But, due to the toxic nature of Pb, RoHS has put many restrictions on further use of Pb in any kind of electronic devices. The removal of lead has made a great challenge for the electronic industry and has therefore pushed it towards a good replacement of a Pb-free alloy.

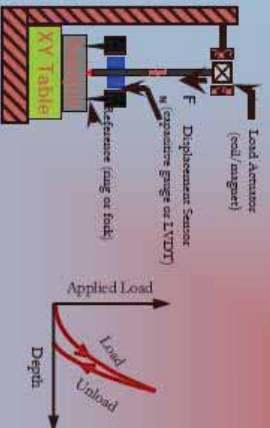


Objective

The objective of this Project is to explore the novel rare-earth elements and use their special surface properties and put them in minor amounts as dopants to improve the currently available lead-free solders towards good set of mechanical, electrical, chemical and thermal properties.

Experimental Approach

Nanomodification is carried out at very small length scale to enhance the mechanical properties like Young's modulus, hardness of individual phase like Intermetallic Compound (IMCs) and matrix.

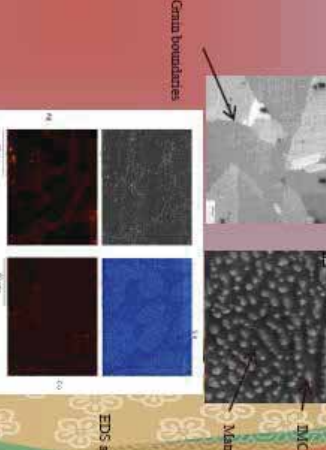


Work Carried Out

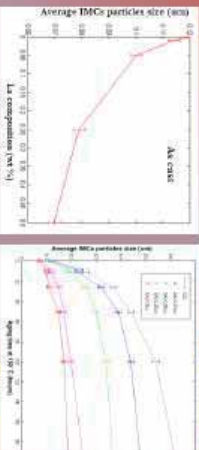
- Study of the available lead-free solders and identify the most competent alloy combinations.
- Perform the thermal aging and investigate the coarsening rate, size, distribution and volume fraction of IMCs.
- Characterize different lanthanum-doped compositions for varying environmental conditions.

Future Work

- Investigate the grain orientations using EBSD technique both before and after testing.
- Incorporate the pull-up effects into nanomodification results.
- Perform the thermo-mechanical treatment and develop a linkup between the coarsening rate of IMCs and thermal aging.



Results



Airborne Particles: Chemical Composition & Health Impact

Jean Salque¹, Gabriel Krier¹, Jairo Falla², Antoine Bonnefoy², Olivier Delhomme¹, Lionel Vernix-Lozet¹
 e-mail : jean.salque@univ-metz.fr

¹Mass Spectrometry and Laser Chemistry Laboratory (LSMCL), CPD 1 Bld4 Aveq. 57070 Metz
²Ecotoxicology Biodiversity - Ecosystems Interaction Laboratory (LIEBE), IUT Thionville-Yutz, 57070 Yutz

What are particles ? Air Watch

- Particles: solid matter smaller than a tenth of a hair (< 10µm)
- Sources: vehicle exhausts, industries, air conditioning, natural dust...

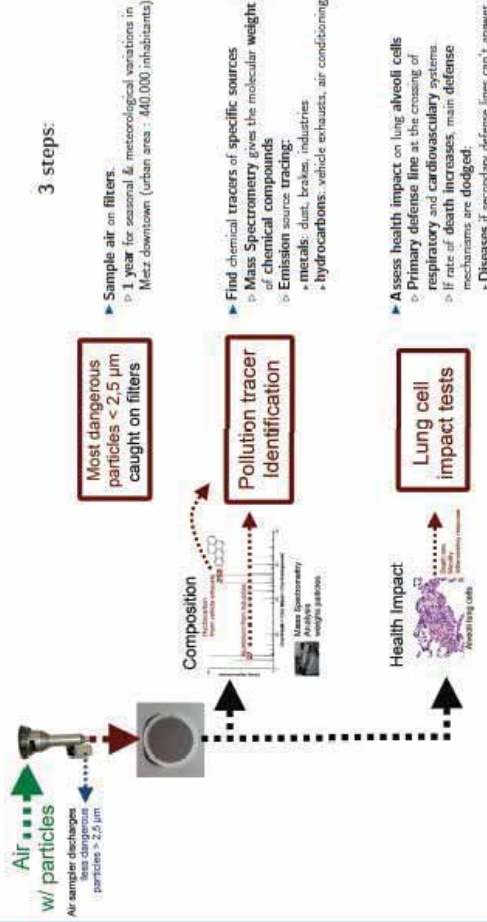


Scanning Electron Microscopy
 ► trachea cells (yellow)
 ► allergenic particles (pink)

- ATMO index rates French Air Quality, but assesses only the quantity of 4 pollutants : SO₂, NO₂, O₃ and particles

- Need to assess particle quality and health impact

How to Assess Airborne Particle Composition and Health Impact ?



Aknowledgements

- Région Lorraine for their financial support and interest in this study
- ATMOLOR for their logistical support, their data and their availability to help this project
- all personal in LSMCL for their insight and help in every step of the study

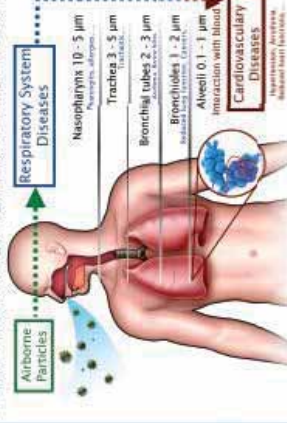


Future Prospects

- Study Particle variations over the years, seasons and months
- Identify Urban Pollution Tracers
- Get useful informations concerning effects of particle sizes and shapes on defense cells
- Get a better knowledge of small-sized particle health risks in our region
- Help improve the index by adapting it to these fine particles

Particle Health Impacts

- The smaller the particles, the deeper they go through human body
- Particles cause increasing damage, function of the depth they reach



European Doctorates
 16-21th October 2011
 Greater Region University
 Saarland, Liège, Luxembourg, Metz, Nancy, Strasbourg and Tübingen

Previously...



I graduated by Autonomous University of Mexico State (UAEM) at Toluca city, Mexico.
 I got a degree in Sciences communication with my first research who consisted of take fieldnotes inside a pentecostal sect settle at Toluca and interpret my participation in the group.



Universal Church of the Kingdom of God, from Igreja Universal do Reino de Deus (name in portuguese), also known as a Pentecostal Christian organisation came from Brazil. This particular group use frequently the media for to add followers. It presents a TV program at midnight in a channel with national coverage in Mexico. In this TV program, people expose their matters and how the group has changed their lives.

My interpretation is about the hopeless in modern times.
 I proposed my project to the professors of the laboratory CREM in Paul Verlaine University interested in the representation of suffering at medias.
 So, Jacques Walter proposed me to work the Television during my master of research. And, this project continu in my doctoral research.

Nowadays...

I am a grant holder by the Ministry National Education of France getting a doctorate in Information and Communication Sciences (SIC) by PIEMES in Paul Verlaine University of Metz.



My guides of research are the professeur en SIC, Jacques Walter (Paul Verlaine University of Metz, France) and the professeur en Visual Anthropology, Julio Amador Bech (National Autonomous University of Mexico, UNAM).

In my research, I develop a comparative culture study between France and Mexico through the TV Program, Téléthon.



Hermeneutic is the methodology that I am applying to analyse the image, contents and discourse about the illness and health represented by the Television.

Telethon...

Is a « lengthy television program to raise funds for a charity » (The American Heritage College Dictionary, 2002, Houghton Mifflin Company, Boston-New York, 4th Edition, 2004)

Telethon comes from the words: television and marathon. The English dictionary takes this composed word in account between 1945 and 1950, after the Second World War.

The most famous Telethon is the emission presented by the american star Jerry Lewis. His first show was in 1975, motivated by the Muscular Dystrophy Association (MDA).

This way of collect donations by using the TV, was imported to France by Bernard Barraud and Pierre Birambau, president and vicepresident of the Myopathich French Association (AFM) at 1987. The collect has allowed great advances in genetic research.



Too, it was imported to Mexico by Fernando Landeros and a particular group of businessmen of the media who build the attention centers for children ill with the collect.



Nallely SALGADO RUIZ
 career in
 Communication Sciences

Assessment of Implicit and Explicit Algorithms in Numerical Simulation of Granular Matter

PhD Candidate: Kasra Samiei
PhD Supervisor: Bernhard Peters



UNIVERSITÉ DU LUXEMBOURG
Research Unit in Engineering
Sciences (RUES)

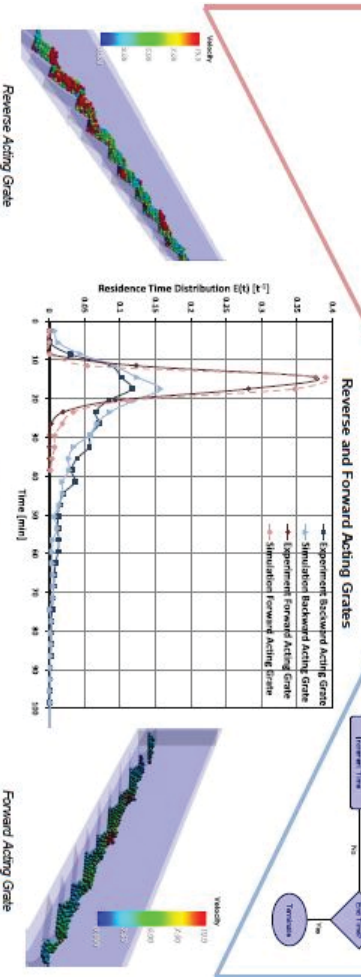
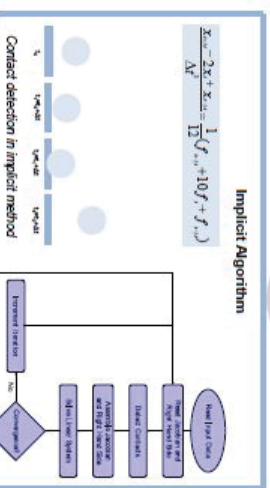
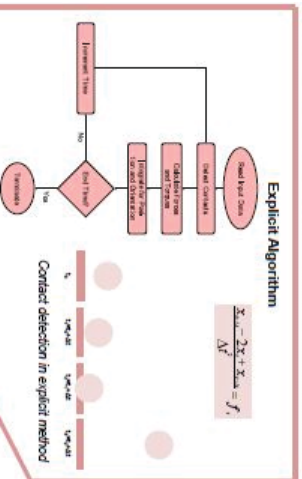
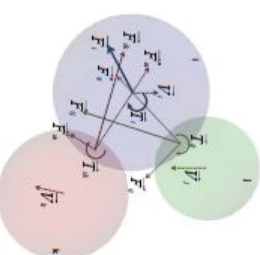
Introduction

Discrete Element Method (DEM) is a widely used tool to simulate the motion of granular matter, relying on:

- Newton's second law: $\vec{F} = m \cdot \vec{a}$, $T = I \cdot \ddot{\alpha}$
- Numerical integration: $\dot{X} \rightarrow \dot{X} \rightarrow X$

Objectives

- Implementing an implicit algorithm and assessment of its advantages and disadvantages in comparison with the conventional explicit algorithms.
- DEM analysis of the residence time distribution of solid particles on forward and reverse acting grates.



Conclusions

- Despite generating more accurate results than the explicit method using the same time step, the gain of the implicit method does not pay back the overhead computational costs. With the current state of the art where the computational burden of the force computation is a major obstacle in DEM, an implicit method or any other integration method which requires more than one force computation per time step is not recommended.
- Direct quantitative comparison of the DEM predictions and experimental results in various cases reported in this thesis indicate highly promising capability of the DEM in simulating the motion of solid particles on forward and reverse acting grades.

Contact: kasra.samiei@uni.lu, 6, rue Coudenhove-Kalergi, L-1359 Luxembourg

Katja Seidel, M. A.

Romance Philology
Saarland University
Germany

UNIVERSITÄT
DES
SAARLANDES

Girolamo Porto's report of his journey to Tyrol, Austria and South Germany

Edition of the manuscripts from 1709, 1710 and 1715 and historical-linguistic commentary

1. Transcription of the manuscript (179 pages)
2. Background (travel report genre, Italian travelers to Germany between 1648 and

1789, identity of Girolamo Porto, the itinerant)

[illegible]

Extract from page 176r



The itinerary

3. Historical-linguistic commentary

Modern Italian	Porto's Italian	Phenomenon
uomo Di Vostra Paternità Molto Reverenda Schwarzenberg signore	huomo Di Va Pat. ^{1a} Mo. ^{te} Rev. ^{da} Stäzenbergh monsieur	Etymological/Latinized spelling Use of medieval abbreviations Italianization of German proper nouns French influence

4. First recorded references (Italian words that appear for the first time in the manuscript)

bissa [French: la biche, German: die Hirschkuh] f. hind. "Li Cervi al presente sono flerissimi [...] vanno à schiera dietro alle Bisse venute in caldo (così dette in termine cacciatore le Cervie)" (Porta, 88v).

brandvin [German: der Brandwein] m. „brand wine”: „il Brandvin, il quale è AcquaVite potente” (PortoA, 35v).

burgravio [German: der Burgraf] m. 'burggrave': "li Burgravi avanti la vendita erano solamente Ministri Imperiali"

(Porto A., 2017).

sittata f., *sleigh* mde.: la mia curiosità, di vedere una Corsa di Tregge, volgarmente detta Sittata" (Portob., 175r).
swimmer [German: der (Wiener) Schwimmer] m., kind of carriage with two or four wheels, particularly fast: „adoperandosi qui certe Stufiglie da due luoghi, con Cristalli, dette Swimmer" (Portob., 162v).

vicentino (staro ~) m., old measure of capacity': *Vendesì quì mezzo Ducato Veneto lo Staro Vicentino* (PortoA, 26r).

Kattia Seidel, M. A.

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Tel. +49(0)681-302-3325/k.seidel@mx.uni-saarland.de

MEASUREMENT OF FERRITIN BY GMR SENSOR

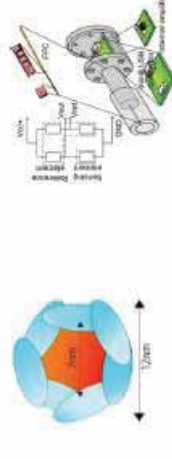
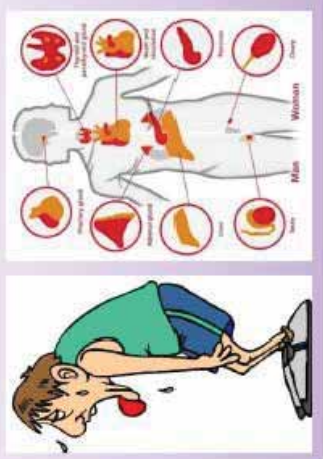
H. SHIRZADFAR, M. NADI, D. KOURTICHE, S. YAMADA

Introduction : Giant magnetoresistance (GMR) sensor has been developed and widely applied to use as magnetic read head in data storage industry. GMR sensor were previously suggested for such bioapplications as molecular and microfluidic technologies. This work is a collaboration between Nancy University and Kanazawa University to investigate the possibilities to use GMR sensor for improving the quality of ferritin measurement in blood ex vivo first and in a prospective way, in vivo.

Ferritin: The Iron-Storage Protein

Ferritin is a protein that is found in almost all living organisms, including bacteria and algae, and functions as a binding agent for iron levels in the body. Iron in the body is bound to ferritin, where it is stored to be used by the body. Ferritin also serves to regulate the iron levels in the body, and prevents any iron deficiency or iron overdose.

Iron Disorders



by correlation with magnetic properties of blood: permeability & susceptibility

GMR Sensor is used to measure Ferritin

Conclusion : Iron is an essential trace element that is used to form molecules in body, such as hemoglobin. Increase and decrease of iron in the body will cause various diseases. Ferritin is the body that stores iron and releases it through channels in a controlled fashion. The high sensitivity of the GMR sensor allows detecting the changes caused by Ferritin changes.



CONTACT : Hamidreza.shirzadfar@lien.uhp-nancy.fr

Fully polynomial time approximation scheme for minimizing the Symmetric Quadratic Knapsack Problem

Maryam Seifaddini
supervisor: Ined Kacem
Université Paul Verlaine – Metz

Formulation

Symmetric Quadratic Knapsack Problem

Minimize $\sum_{i,j \in [n]} a_{ij}x_i x_j$
 $\sum_{i \in [n]} w_i x_i \leq W$
 $x_i \in \{0,1\}$

where $a_{ij} = a_{ji} \in \mathbb{R}$

x_i means that item i is placed in the knapsack. $x_i = 0$ means that item i is not placed in the knapsack.

Algorithm DP

Let $W = \sum_{i \in [n]} w_i$

Let $DP[i][j]$ be the maximum value of the objective function for the subproblem with items $1, \dots, i$ and capacity j .

Let $DP[i][j] = \max\{DP[i-1][j], DP[i-1][j-w_i] + a_{ii}\}$

The running time of the algorithm is $O(nW)$.

Dynamic programming

The problem can be solved by dynamic programming. Let $DP[i][j]$ be the maximum value of the objective function for the subproblem with items $1, \dots, i$ and capacity j .

Let $DP[i][j] = \max\{DP[i-1][j], DP[i-1][j-w_i] + a_{ii}\}$

The running time of the algorithm is $O(nW)$.

FPTAS

We want to modify the execution of Algorithm DP in order to reduce the running time. The main idea is to remove a small part of the states generated by Algorithm DP, but to keep the approximation ratio. We will use the following technique:

We split the interval $[0, W]$ into k equal subintervals $A_1, \dots, A_k$.

We will use the following technique:

We will use the following technique:

Estimation of model of the reliability and the maintainability, by progressive classification and fusion data.

Working, source of information

Engine Component



Complex equipments



Failures Events
Failure Mode



REX



Area B

Area A

Data processing REX (Feedback)



Methods: Quantile Fusion
Or
Failure Probability
Separation by statistical testing & by graph



Analysis of equipment behavior

Analysis

Failure times
Probability of failure
Working conditions

Modeling

Probability distribution function
Quantiles of the failure distribution
Use the Polynomial functions of data transfer
Variability of the coefficients of polynomials
Impact of operating conditions

Application

Efficient model of failure distribution without parameters
Optimization of maintenance policy
Integration of the Production and maintenance Risk Assessment

Ph.D student: I. B. SIDIBE
Professor: K. H. ADJALLAH

Defining Antonymy by studying co-occurrences in Context

Marie Stieffens

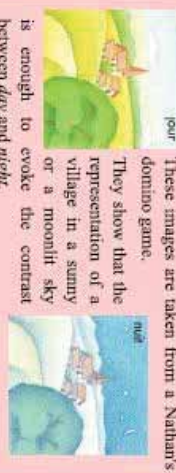
FNRS

Marie.Stieffens@ulg.ac.be

1. Antonymy: a very familiar meaning relation

The term **antonymy** is usually used to designate the relation between the meanings of two words. Such two words are called **antonyms**. **Antonyms** is the scientific term for **opposites**.

Everybody knows the opposite of *young*, *happy*, *day* or *love* (or their translations in different languages). The English speakers learned in childhood *young* as opposed to *old*, *happy* to *sad*, *night* to *day* and *love* to *hate*. This learning is aided by many educational games, picture books and other textbooks, devoted entirely or partly to antonymy. The antonyms, or opposites of a language, at least the most common of them, are familiar to all speakers of that language, including the youngest.



four domino game.

They show that the representation of a village in a sunny or a moonlit sky is enough to evoke the contrast between *day* and *night*.

3. A corpus-based dictionary: searching defining criteria

What is the need to define a semantic relation so well intuitively understood by all speakers of a language? If the most common opposites are recognized by everyone, things are not so simple for other opposites.

In 1842, Paul Ackermann wrote the first dictionary of antonyms in French and the only entirely based on a corpus of literary texts. In his dictionary, Ackermann has listed opposites still regarded as such today like *haut* (high) and *bas* (low).

Ex: C. haut – bas.
J'étais sûr de dire que le plus haut était plus bas que le plus bas était plus haut.
La Pierre, La Pierre, n. 3.

4. Perspectives

Finding precise criteria to define antonymy is useful in at least three areas:
- the writing of dictionaries, to reflect as much as possible the relations between the words of a language,
- the learning a foreign language that requires a structured vocabulary of this language,
- the natural language processing to improve translation software, for example.

2. Antonymy in discourse: a less studied phenomenon

The use of two antonyms in the same sentence is less well known by non-linguist speakers but also less studied by linguists. Yet is this phenomenon very common. Many sentences in which two **opposed** antonyms were found by Jones in the newspaper called *The Independent*. These phrases include the following:

"The survey also shows that the environmental movement as also won the debate over **public** versus **private** transport" (Jones 2002: 36).

Jones also found many other sentences in which two antonyms are used together **without opposition**:

"And this good practice can be employed in respect of both **listed** and **unlisted** properties" (ibid.: 73).

These two types of sentences can be studied to determine the functions of antonyms in a text, as Jones did, or to define precisely what the relation between opposites is and to describe the formal structures (X versus Y, X and Y, etc.) that connect them in use. It is the purpose of our research.

He also listed opposites that are not used anymore as **simple** (*simple*) and **implete** (*complicated*), by speaking about a story). But there are also words that would never be recognized today as antonyms by French speakers, such as **hiens** (*goods*) and **ombré** (*vaine* (*vain shadow*, *faux morgant*)).

Ackermann did not have clear criteria to say if *hiens* and *ombré* (*vaine* (*vain shadow*)) are antonyms or not. Such criteria still don't exist. To answer the question: Are *goods* and *vain shadow* antonyms?, one might consider that a special relation must exist between the words and not just between their meaning. In this case, the sense opposition between *goods* meaning "something" and *vain shadow* meaning "nothing, absence of any real thing" won't be enough to say that *goods* and *vain shadow* are antonyms because there is no particular relation between the words *goods* and *vain shadow*. Similarly *nothing* and *car* or *television* are not antonyms. It remains to define precisely the relation that should exist between words so that they are antonyms.

Ex: C. hiens – ombre vaine.
Un bon hiens de laide dit: "Je suis plus hiens, je suis plus ombre vaine."
La Pierre, La Pierre, n. 3.

Adaptation of the text from: Ackermann, Paul. 1842. *Le dictionnaire des antonymes ou des contraires*. Metz: chez les frères Ackermann, Libraires.
Cela & L. 1842. *Le dictionnaire des antonymes ou des contraires*. Metz: chez les frères Ackermann, Libraires.
Cela & L. 1842. *Le dictionnaire des antonymes ou des contraires*. Metz: chez les frères Ackermann, Libraires.
Cela & L. 1842. *Le dictionnaire des antonymes ou des contraires*. Metz: chez les frères Ackermann, Libraires.
Cela & L. 1842. *Le dictionnaire des antonymes ou des contraires*. Metz: chez les frères Ackermann, Libraires.

Content Based Image Retrieval Networking

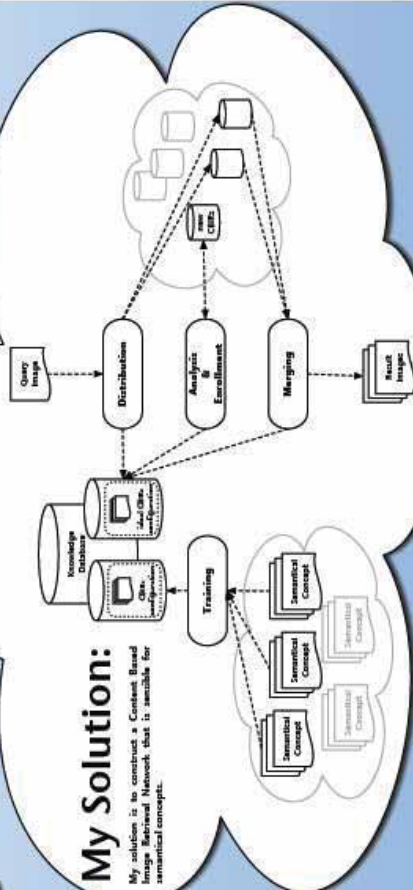
The Problem:

Finding similar images to a given input image in a large database is a difficult task for most systems of major companies are lacking in performance. An example: Try to find similar images like the following one using Google Images.



My Solution:

My solution is to construct a Content Based Image Retrieval Network that is suitable for semantical concepts.



Dipl.-Inf. Univ. Christian Vilsmaier
PhD Candidate
LIRIS/INSA-Lyon, France
Universität Passau, Germany

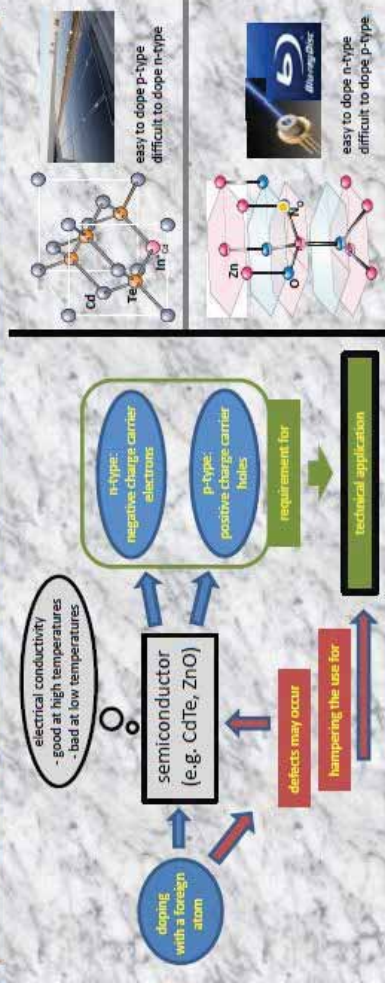
Muhammed Türker
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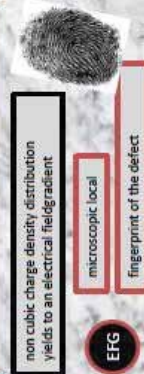
Universität des Saarlandes
Technische Physik
66123 Saarbrücken, Germany

Analysis of atomic defect complexes due to compensation mechanisms doping cadmium telluride and zinc oxide

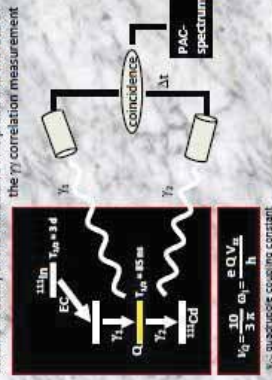
AIM: Analysis of microscopic environment on atomic level of defects in semiconductors



Perturbed Angular Correlation



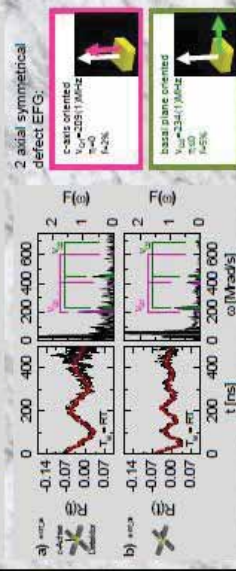
schematic decay of the radioactive PAC probe and the idea of the $\gamma\gamma$ correlation measurement



This research includes

- on the one hand the n-type doping of CdTe with the donor In, whereby possible compensation mechanisms limit the achievable carrier concentration (Physica B 302 (2001) 155),
- and on the other hand the p-type doping of ZnO by codoping with the donor In and a group V element as acceptor to enhance the carrier concentration at p-type doping (Physica B 302 (2001) 155).

A suitable tool to study the structure of the formed defects is the perturbed $\gamma\gamma$ angular correlation (PAC) using the hyperfine interaction between the nuclear quadrupole moment and the electrical field gradient in the close neighborhood of the respective nucleus.



PAC Spectra (left) and the Transient Perturbed Angular Correlation (right) of ^{109}Cd implanted with a ^{109}Cd source into CdTe and ZnO. The PAC spectra are shown for the c-axis oriented defect (left) and the basal plane oriented defect (right). The transient PAC spectra are shown for the c-axis oriented defect (left) and the basal plane oriented defect (right).

In addition this work includes the implementation of

- Hall-effect measurements
- diffusion experiments with the radio tracer method
- photoluminescence spectroscopy
- and chemical vapor deposition of semiconductor films.

Infrared spectroscopy studies on the respiratory Complex I on the role of the internal hydrogen bonding network

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Infrared spectroscopy

IR spectroscopy is the measurement of the wavelength and intensity of the absorption of infrared light by a sample. The infrared light is energetic enough to excite molecular vibrations to higher energy levels.

The infrared region is divided into three regions.

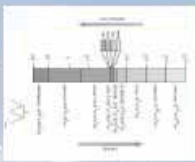


Figure 1: The electromagnetic spectrum.

Infrared spectroscopy exploits the fact that molecules absorb specific frequencies that are characteristic of their structure. These absorptions are resonant frequencies, i.e. the frequency of the absorbed radiation matches the frequency of the bond or group that vibrates. The energies are determined by the shape of the molecular potential energy surfaces, the masses of the atoms, and the associated vibronic coupling.

Fourier Transform Infrared (FTIR) spectroscopy

FT-IR stands for Fourier Transform Infrared, the preferred method of infrared spectroscopy. In infrared spectroscopy, IR radiation is passed through a sample. Some of the infrared radiation is absorbed by the sample and some of it is passed through (transmitted). The resulting spectrum represents the molecular absorption and transmission, creating a molecular fingerprint of the sample. Like a fingerprint no two unique molecular structures produce the same infrared spectrum.

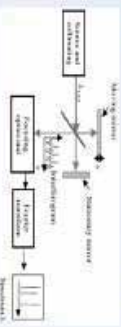


Figure 3: A Fourier Transform Infrared spectrometer using a Michelson interferometer.

Band assignments

1. Normal modes calculations.
2. Electrochemistry.
3. Isotope Labeling (D_2S , Fe^{54} , C^{13}).
4. Site-direct investigations.
5. Deprotonation and protonation.
6. Hydrogen/deuterium exchange.

Information obtained

1. Determined the secondary structure of proteins.
2. Detect conformational changes.
3. Recognized cofactors and redox intermediates.
4. Study hydrogen bonding interactions.
5. Study of metal ligand vibrations.
6. Study of proton transfer process.

Structure +
function of the
protein

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Barron, C. H. H. Photochem. Photobiophys. 1989, 10: 157-170.
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Vogl, T., Matuschewski, J. Biochemistry 2003, 42: 1266-1274.

What is a molecular vibration?

Any change in the shape of the molecule, (along the bonds or between the atoms).



Figure 2: Vibrational modes of CO₂.

Electron Transport Chain → COMPLEX I

The electron transport chain (ETC) couples an electron transfer between an electron donor (such as NADH) and an electron acceptor (such as O₂) with the transfer of H⁺ ions (protons) across a membrane. The resulting electrochemical proton gradient is used to generate chemical energy (ATP). Electron transport chains are the cellular mechanisms used for extracting energy from sunlight in photosynthesis and from redox reactions, such as the oxidation of sugars (cellular respiration).

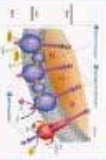


Figure 3: Schematic representation of the ETC and the function of each reaction.

NADH Dehydrogenase is the first enzyme Complex I of the mitochondrial electron transport chain.

In this process, the complex translocates four protons across the inner membrane per molecule of oxidized NADH leading to build the electrochemical potential used to produce ATP.



Figure 4: Structure and proposed model of proton translocation of Complex I.

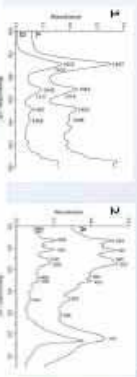


Figure 6: (A) and (B) Infrared absorbance spectra of (A) Complex I from E. coli at pH 7 and (B) Infrared spectrum of Complex I from bovine E. coli at pH 6.



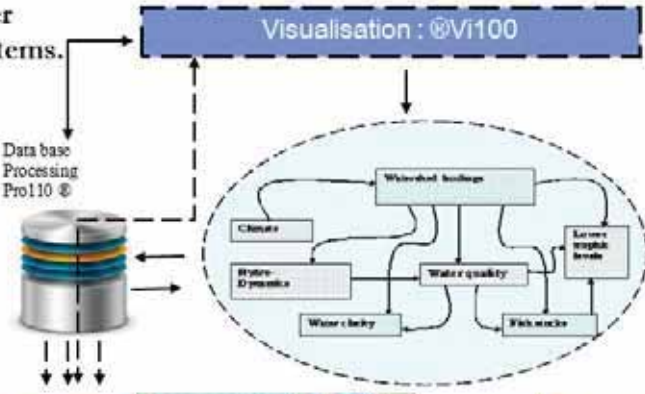
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Detecting slow changes
SSE_Vi ProX® 01 platform.

Methodological framework ViProx®

Goal: The aim of this work is to deliver expertises platform of sustainable systems.

- 1- We combining a range tools and concepts to develop platform captor integrated dedicate to social and ecological infrastructures.
- 2- Measurement and capturing the emergent behaviours and dynamic relationships that characterise complex, adaptive systems.



Analysis and Expertises
X11®



Dorin Maxim,

INRIA Nancy-Grand Est

Probabilistically Analyzable Real Time Systems

The Real-Time Embedded Systems domain includes: aerospace, automotive, electronics and telecommunications, and is offering solutions to problems like:

- Safety (active/passive)
- Fuel efficiency (ex: hybrid cars)
- Reduced emissions (less CO₂)
- Comfort

In the future, cars will be completely controlled by computers



A real time system offer guarantees regarding its behavior in time.

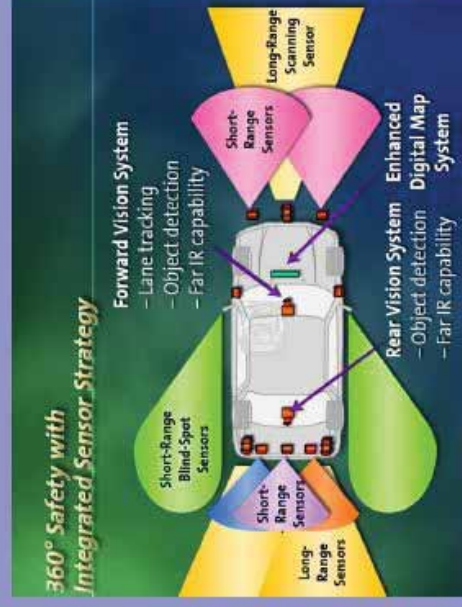
For example, the automatic braking system must be activated in a few milliseconds after the detection of an obstacle.

Obstacle detection is done by a sensor that is controlled by the same computer that controls the braking system.

A number of other safety-critical functionalities might be controlled by the same computer.

Besides safety-critical functionalities, the non-critical functionalities must be integrated in the same system. For example air-conditioning, entertainment system, etc must be controlled by the same computer.

The question is how we distribute computational resources to all the components so that the system reacts in time in both cases: when it is a problem of safety (otherwise lives might be lost) and when it is a problem of comfort (otherwise the client will not be happy and will not buy the car if it is not responding promptly to its commands).



LAST NAME, First name	Research project
BARTEL Alexandre	Service Oriented Architecture, Security, Access Control Software testing Software security Access control SOA Static analysis Android
BENZIANI Mohamed	Ordonnancement des ateliers pour minimiser le flowtime pondéré Le travail envisagé consiste à développer des méthodes originales de résolution pour le problème du « Job Shop » pour minimiser le Flow Time pondéré ou le Makespan. Le problème consiste à ordonnancer un ensemble de tâches sur un ensemble de machines suivant certaines contraintes. Chaque tâche doit passer par un certain nombre d'opérations effectuées par les machines dont l'ordre est donné. Chaque machine peut opérer au maximum une tâche à la fois. Pour chaque opération la durée opératoire est connue à l'avance. Les tâches sont non préemptives. De ce fait, on ne peut pas interrompre l'exécution d'une opération. Suivant ces contraintes on doit chercher un ordonnancement des tâches afin de minimiser le Flow Time pondéré ou Makespan. Un survol préliminaire montre que les algorithmes de la littérature ne sont pas adaptés au problème ou bien ne peuvent résoudre que des instances de très petites tailles. C'est pourquoi, une amélioration des heuristiques et des bornes inférieures s'impose.
BREZGUNOVA Mariya	The application of halogen bondings in crystal engineering and supramolecular chemistry Halogen bonding is a directional, attractive interaction $B\cdots X-Y$ in which X is the electrophilic halogen (Lewis acid, halogen bond donor), B is a donor of electron density (Lewis base, halogen bond acceptor). The remarkable strength and the particularly high directionality of halogen bonding reveal a great potential in bridging molecular and supramolecular topologies. In the present work we are investigating crystal structures of halogenated compounds (hexachlorobenzene, pentabromophenol) by high resolution X-ray diffraction at low temperature and calculating their electron density and electrostatic potential in order to reveal the electrophile/nucleophile regions around the halogen atom. In particular we are performing the modelisation of the electron density distribution and electrostatic potential as well as performing the topology of the halogen interaction.
HADIFE Nader	Mécanismes moléculaires de l'IL24 Le gène Mda7 (Melanoma Differentiation Associated gene 7) a été cloné en 1995 par hybridation soustractive à partir de mélanocytes normaux différenciés in vitro en présence d'FN- β et Mezeréine (Jiang et al., 1995). L'expression de ce gène est inhibée en cas de différenciation cellulaire, en particulier dans les mélanomes malins. Il a été conclu que le gène Mda7 pouvait bloquer la prolifération tumorale. En effet, l'introduction du cDNA de Mda7 dans des lignes de cancer du sein, ovaire, bronches ou mélanome provoque l'apoptose. Plus tard, il a été montré que Mda7 code pour une protéine sécrétée, nommée IL-24 et dont la structure et les récepteurs l'apparentent aux cytokines de type II de la famille de l'IL-10. Notre équipe a montré que l'IL-24 inhibe la différenciation plasmocytaire des cellules B normales du centre germinatif dans un modèle T-D (Maarof et al., 2010). Mon objectif était : -l'effet de l'IL-24 sur la voie mémoire de cellules B normal -mécanismes moléculaires de l'action de l'IL24
LAMBO OUAFO Adrienne	Learning Luxembourgish as an Additional Language What is the role of the social context in learning Luxembourgish by multilingual adults?
MAXIM Dorin	Probabilistically Analyssable Real-Time Systems Across a wide range of industries in the real-time embedded systems domain, including aerospace, automotive electronics, and telecommunications, there is a strong demand for new functionality that can only be met by using advanced high performance microprocessors. Building real-time systems with reliable timing behavior on such platforms represents a considerable challenge. The wide variability of execution times due to aggressive hardware acceleration features like cache, and deep memory hierarchies means that deterministic approaches to worst-case execution time analysis and worst-case response time analysis can indicate that timing constraints will not be met, when in practice the probability of a deadline miss actually occurring in the lifetime of the system is vanishingly small. In this way, deterministic analysis can lead to significant overprovision in the system architecture, effectively placing an unnecessarily low limit on the
MURA Katharina	Unterstützung der Ausführung und des Trainings von industriellen Montageprozessen mit Hilfe von Augmented und Virtual Reality Gegenstand der Doktorarbeit soll die nutzerzentrierte Entwicklung von zwei innovativen, technologischen Systemen sein, die in zwei EU-Projekten realisiert werden. In dem ersten Projekt ist das Ziel die Entwicklung eines Assistenzsystems für industrielle Montageprozesse. Es soll den Arbeitern situationsangepasst, über ein Head-Mounted Display (HMD) angezeigten Instruktionen unterstützen, komplexe manuelle Aufgaben auszuführen. Im zweiten Projekt geht es um ein System, das in der Automobilindustrie zum Training von manuellen Aufgaben in der Produktion eingesetzt werden soll. Montageprozesse werden virtuell in sogenannten „Serious Games“ simuliert, um sie zur effektiven und effizienten Schulung von Mitarbeitern einzusetzen. Im Rahmen beider Projekte sind Kenntnisse aus der Psychologie wertvoll. In einzelnen Studien und Experimenten werden die Nutzeranforderungen, die Rahmenbedingungen der Arbeit
RISS Sylvain	De la sémiologie de l'espace du formateur à son agir pédagogique Dans les situations de formations, l'espace est insu, il est la dimension cachée dont parle E.T. Hall. Il est cette mise en tension pour un objectif qui est l'apprentissage, exergue du style pédagogique. Alors, nous sommes en droit de nous questionner : Quels styles pédagogiques de formateurs pour quels espaces ? Quels espaces pour quels styles d'apprentissages ? Cette relation entre espace et formation d'adultes est rarement questionnée, et pourtant elle existe. Elle n'est pas nécessairement consciente ou visible. En effet, même impensé, cet espace-là préfigure d'une organisation, d'une idéologie, d'une psychologie, d'un style de formateur. Ce que je veux tenter de démontrer est qu'il existe une relation entre le style de formateur et son espace in vivo, mais aussi entre cet espace et les styles d'apprentissage. Je souhaite bâtir mon champ disciplinaire qu'est la spatiologie tel que l'a initié Lefebvre, et plus particulièrement la spatiologie de la formation.
SOAREZ Hugues	Etre agriculteur en France aujourd'hui. Images et constructions identitaires des professionnels adhérents et sympathisants de la Confédération Paysanne Ce projet de thèse questionne les constructions de l'identité agricole contemporaine par le biais des paysans adhérents et sympathisants de la Confédération Paysanne. Notre méthode vise la comparaison sur plusieurs terrains d'étude de trois types de représentations spatiales et sociales de ce sous-ensemble d'un groupe professionnel : les images vécues des intéressés eux-mêmes, les images perçues par les autres acteurs de leur vie quotidienne, et les images voulues du siège confédéral, et des entités institutionnelles, économiques et politiques du milieu agricole, à plusieurs niveaux. Nous utiliserons ici entretiens semi-directifs et questionnaires et d'autres outils afin de déterminer les spécificités de son mode d'habiter et les particularités régionales éventuelles. La place, le rôle et l'avenir de l'agriculteur proche ou adhérent de la Confédération Paysanne dans un développement durable des territoires ruraux pourront ainsi être définis à différentes échelles.
TCHOKPON Romaric	Multimedia Document Protection in social networks using digital watermarking In my thesis I'm working on the protection of multimedia documents (images) distributed in social networks. In my approach I'm using the digital watermarking of multimedia documents to track the illegal use of these documents.

NOTES

NOTIZEN

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