



# Présentation

En février dernier, lors de la journée d'audition des doctorants boursiers d'excellence de la Confédération pour le renouvellement de leur bourse de doctorat, nous avons constaté à quel point leurs projets de thèse étaient non seulement d'une qualité remarquable, mais également soutenus par un enthousiasme, une assurance et surtout une compétence de haut niveau.

Tous ces doctorants sont certes intégrés dans des structures de recherche au sein des laboratoires et départements de notre université, et ont la possibilité de présenter leurs recherches dans le cadre de séminaires internes, d'écoles doctorales, voire de colloques nationaux et internationaux. Ils ont aussi l'habitude de se retrouver régulièrement dans le cadre des activités sociales organisées par le service d'accueil, dirigé par Olivier Lombard. Mais à aucun moment, ils n'ont l'occasion d'échanger, de communiquer avec leurs camarades boursiers sur leurs projets de recherche. Après une petite enquête, il est apparu qu'ils n'attendaient qu'une chose : pouvoir participer à une journée où ils présenteraient l'état de leur travail de doctorat, pour l'UNIGE, leurs directeurs de thèses et leurs collègues. La date du mardi 12 septembre 2017 a été retenue. Lors de cette manifestation, une exposition de 10 posters, et 21 présentations orales, réparties en deux sessions, ont été organisées. En complément,

une description du programme des bourses d'excellence de la Confédération sera proposée aux enseignants de l'UNIGE que cela intéresserait.

Nous sommes donc très heureux d'avoir pu organiser cette journée, que nous avons mise sous l'éclairage des publications scientifiques. C'est la raison pour laquelle nous avons demandé à Frederick Fenter, éditeur scientifique de la plate-forme *Frontiers*, de venir nous parler des publications Open Access et de *Frontiers*. Nous aurons aussi le plaisir de recevoir l'Ambassadeur Mauro Moruzzi auprès du SEFRI (Secrétariat d'État à la Formation, la Recherche et l'Innovation), qui s'occupe particulièrement du dossier de la Commission Fédérale des Bourses d'Excellence de la Confédération pour Étudiants Étrangers (CFBE).

Je remercie par avance les participants à cette journée, Olivier Lombard, qui s'est chargé de l'organisation et de la logistique, les étudiants bénévoles ainsi que le rectorat, par l'intermédiaire du vice-recteur Michel Oris, qui a accepté d'ouvrir cette journée.

Jacques Moeschler  
Délégué UNIGE auprès de la CFBE  
Président de la CFBE

# Programme

|                  |                  |   |  |
|------------------|------------------|---|--|
| 09:00 –<br>09:15 | MR060            | Accueil par le professeur Michel ORIS, vice-recteur de l'Université de Genève, le professeur Jacques MOESCHLER, délégué UNIGE à la Commission fédérale des bourses pour étudiants étrangers, et président de cette commission, et la professeure Isabelle SCHULTE-TENCKHOFF, déléguée IHEID | Welcome by Professor Michel ORIS, vice-rector of the University of Geneva, Professor Jacques MOESCHLER, UNIGE delegate to the Federal Commission for Scholarships for Foreign Students, and president of this commission, and Professor Isabelle SCHULTE-TENCKHOFF, IHEID delegate |
| 09:15 –<br>10:15 | MR060            | Conférence "Scientific publishing: opening new channels with new technology" par le Dr Frederick FENTER, Executive Editor, <i>Frontiers</i> ( <a href="http://www.frontiersin.org">www.frontiersin.org</a> )  | Conference "Scientific publishing: opening new channels with new technology" by Dr. Frederick FENTER, Executive Editor, <i>Frontiers</i> ( <a href="http://www.frontiersin.org">www.frontiersin.org</a> )  |
| 10:15 –<br>10:45 | Hall Uni<br>Mail | Pause-café  | Coffee break   |
| 10:45 –<br>12:00 | Hall Uni<br>Mail | Présentation des posters  | Posters session  |
| 12:15 –<br>12:45 | Hall Uni<br>Mail | Lunch (buffet)  | Lunch (buffet)   |
| 12:45 –<br>13:45 | MR060            | Présentation du programme des bourses d'excellence de la Confédération par le professeur Jacques MOESCHLER  | Presentation of the Swiss Government Excellence Scholarships programme by Professor Jacques MOESCHLER  |
| 14:00 –<br>16:00 | MR030<br>MR040   | Présentations orales des projets de thèses par les doctorants<br>Questions-réponses   | Live presentations of thesis projects by the PhD students<br>Questions-answers   |
| 16:00 –<br>16:15 | MR060            | Intervention de M. Mauro MORUZZI, Ambassadeur, chef de la division Relations internationales du Secrétariat d'Etat à la formation, à la recherche et à l'innovation (SEFRI)   | Address by Mr. Mauro MORUZZI, Ambassador, Head of the International Relations Division, State Secretariat for Education, Research and Innovation (SERI)  |
| 16:15 –<br>16:45 | MR060            | Conclusion, discussion animée par le professeur Jacques MOESCHLER et la professeure Isabelle SCHULTE-TENCKHOFF  | Final discussion moderated by Professor Jacques MOESCHLER and Professor Isabelle SCHULTE-TENCKHOFF   |

# Programme des sessions

Session poster – Hall Uni Mail – 10:45-12:00

|             |                |                 |   |
|-------------|----------------|-----------------|---|
| ABDELFATTAH | Maha           | Médecine        | Association Between Personality Factors and Response to Multidisciplinary Program in Patients with Chronic Low Back Pain: A Prospective Study   |
| ALTINAWI    | Mohamad        | Lettres         | L'identification des besoins langagiers des étudiants en fonction du contexte et de publics particuliers : le cas de l'enseignement universitaire du français à l'université de Damas |
| BERROCAL    | Allan          | SDS             | COMpaSS: Context aware cOMputational Model of streSS coping   |
| BILOBE      | Jeanne Armelle | Sciences        | Structure and tectonostratigraphic evolution of the Mamfe sedimentary basin, southwest Cameroon   |
| GAVIRIA     | Julian         | FPSE / Médecine | The Influence of transient affective states on Attention  |
| GERLACH     | Alice          | Sciences        | Systematics of the lichen genus <i>Usnea</i> Adans (Parmeliaceae, lichenized Ascomycetes, Fungi) with emphasis on southern Brazil   |
| GUERRA      | Lucia          | Sciences        | Regional paleoclimate reconstructions in the subtropics of South America from high-altitude lake sediments at the Argentinean Eastern Cordillera (22°-26°s)                           |
| JANSOD      | Sutida         | Sciences        | Electrochemical Ion-Transfer Mediated by a Novel Os(II)/(III) Compound with Thin Membrane   |
| KIDANE      | Brook          | Droit           | Restructuring jurisdictional mayhem: The quest for a better coherence between RTAs and the WTO  |
| NJOH EKOUME | Stéphane       | Sciences        | Construction of a small prototype to validate an innovative camera for high-energy Gamma-ray Astronomy.   |
| ZOUGGARI    | Nawel          | Sciences        | Implication of heparan sulfates as protection against tumor invasion: study in uterine endometrioid adenocarcinoma  |

## Session 1: MR 030 – 14:00-16:00

Chair: Isabelle Schulte-Tenckhoff

|                 |                       |                                  |                    |  |
|-----------------|-----------------------|----------------------------------|--------------------|--|
| 14:00           | ALIYEV                | Tural                            | SDS                | Réhabilitation urbaine des territoires industriels à grande échelle : nouvelle matrice de l'environnement bâti-environnement naturel dans le contexte de la métropolisation de Bakou (Azerbaïdjan) |
| 14:08           | ALPIZAR<br>RODRIGUEZ  | Deshiré                          | Médecine           | Reproductive Factors as Predictors of Disease Development and Disease Progression in Rheumatoid Arthritis Patients   |
| 14:16           | BERROCAL              | Allan                            | SDS                | COMpaSS: Context aware cOmputational Model of streSS coping  |
| 14:24           | BILOBE                | Jeanne<br>Armelle                | Sciences           | Structure and tectonostratigraphic evolution of the Mamfe sedimentary basin, southwest Cameroon  |
| 14:32           | BORINCA               | Islam                            | FPSE               | (Mis)Understanding Prosocial Outgroup Behaviors  |
| 14:40           | GARCIA                | Marcela                          | Lettres            | Architecture Centers: Institutional Framework and Exhibition Discourse   |
| 14:48           | GAVIRIA               | Julian                           | FPSE /<br>Médecine | The Influence of transient affective states on Attention   |
| 14:56           | KAMBLE                | Swati                            | SDS                | Caste and gender inequalities: Policy and Dalit women in Maharashtra, India  |
| 15:04           | KIDANE                | Brook                            | Droit              | Restructuring jurisdictional mayhem: The quest for a better coherence between RTAs and the WTO   |
| 15:12           | MOHANTY               | Somabha                          | IHEID              | Participatory Governance, Social Inequality and the Urban Poor in India  |
| 15:20           | NJOH<br>EKOUME        | Théodore<br>Rodrigue<br>Stéphane | Sciences           | Construction of a small prototype to validate an innovative camera for high-energy Gamma-ray Astronomy.  |
| 15:30-<br>16:00 | Questions et réponses |                                  |                    |  |

## Session 2: MR 040 – 14:00-16:00

Chair: Jacques Moeschler

|                 |                             |              |            |  |
|-----------------|-----------------------------|--------------|------------|--|
| 14:00           | ASKRI                       | Majid        | Lettres    | L'impersonnel et l'inversion non interrogative en français moderne : structures, voix, archaïsmes et/ou système ?    |
| 14:08           | AYMERIC                     | Jacques      | Sciences   | Structures défensives précoloniales au Sénégal Oriental: étude archéologique, ethnographique et historique           |
| 14:16           | CHERNI                      | Alaeddine    | Sciences   | Probing the diversity of nitrogen-fixing plant-symbiotic bacteria in soils of Tunisia                                |
| 14:24           | CISSE                       | Siaka        | SDS        | Inégalités d'accès et de recours aux soins de santé maternelle : le cas du Mali                                      |
| 14:32           | JANSOD                      | Sutida       | Sciences   | Electrochemical Ion-Transfer Mediated by a Novel Os(II)/(III) Compound with Thin Membrane                            |
| 14:40           | MEDIOUNI                    | Abderrahmen  | GSEM / HEG | Designing Disaster Logistics Networks using Stochastic Optimization.   |
| 14:48           | MILLOGO                     | Roch Modeste | SDS        | Diversité des modes de formation de la famille dans des contextes de fécondité « basse » en Afrique au sud du Sahara |
| 14:56           | TYAGI                       | Vasundhara   | Sciences   | Targeted drug delivery to the buccal mucosa: Development of new techniques and therapeutic strategies                |
| 15:04           | VERRIER                     | Jeanne       | IHEID      | Three Essays in Finance and Development  |
| 15:12           | VICENTE<br>BARRETO<br>PINTO | Mateus       | Sciences   | Study of capacitively-coupled pixel sensors and HV-CMOS MAPS for ATLAS Inner Tracker high luminosity upgrade         |
| 15:20-<br>16:00 | Questions et réponses       |              |            |  |

# Résumé des communications orales et des posters

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## **Maha ABDELFAH (Egypte)**

Faculté de médecine / Hôpitaux universitaires de Genève

Direction de thèse : Stéphane GENEVAY

### **Association Between Personality Factors and Response to Multidisciplinary Program in Patients with Chronic Low Back Pain: A Prospective Study**

Chronic back pain (CBP) is one of the most common and costly healthcare problems. Psychosocial factors influence the initial onset of CBP, the transition of low back pain to a chronic condition, the maintenance of chronic pain, and the responsiveness to treatment. Personality type could be an important key in this regard. This study aims to identify which personality traits are more likely to seek medical care from a spine specialist, and to discover whether there is an association between certain personality traits and response to multidisciplinary back pain treatment

## **Poster**

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## **Tural ALIYEV (Azerbaïdjan)**

Faculté des sciences de la société, Institut des Sciences de l'Environnement

Direction de thèse : Alexandre Babak HEDJAZI & Laurent MATTHEY

### **Réhabilitation urbaine des territoires industriels à grande échelle : nouvelle matrice de l'environnement bâti – environnement naturel dans le contexte de la métropolisation de Bakou (Azerbaïdjan)**

**Mots-clés:** Projet territorial, Villes en transition, Stratégie environnementale, Bakou, Réhabilitation urbaine

Ma recherche de doctorat s'inscrit plus spécifiquement dans le domaine de l'urbanisme durable. Il s'agit, pour cette doctrine, de placer les enjeux écologiques au

centre de la réflexion et l'action sur les environnements urbains. Ma recherche s'attache ainsi à la transformation d'un territoire de grande échelle qui a subi de lourds dommages environnementaux ; je m'attache en effet à dégager les conditions de possibilité de la réhabilitation d'un vaste territoire post-industriel dans la ville de Bakou, la capitale de l'Azerbaïdjan. C'est la plus grande ville en termes de la population (2.5 millions habitants) de la région du Caucase (croisement de l'Europe de l'est, l'Asie de l'ouest et le Moyen-Orient).

Cette zone industrielle, contaminée par des polluants de l'industrie lourde, naît au XIXe siècle (1847), alors que Bakou devient le premier centre mondial d'exploitation pétrolière. Par la suite, les décisions des autorités soviétiques ont élargi son périmètre, dans le même temps que le désastre écologique changeait d'échelle.

L'ampleur du territoire à réhabiliter (plus de 2000 ha) et son positionnement (cette mégafrique industrielle coupe la ville en deux) font de mon terrain un site passionnant pour tester de nouveaux outils d'aménagement et d'urbanisme.

L'enjeu est considérable. Il s'agit de répondre à différentes questions : comment pouvons-nous réhabiliter un territoire à grande échelle et faire un projet d'urbanisme qui tire parti de l'histoire du site (traces de l'industrie lourde, mémoire collective relative à l'ancien bloc soviétique et la territorialisation des politiques collectivistes) ? Quels sont les outils les plus adaptés à conduire un tel projet dans un contexte post-soviétique, tenant donc compte des multiples dynamiques du changement, y compris des changements environnementaux tels que le changement climatique.

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## **Présentation orale, Session 1**

**Deshiré ALPIZAR RODRIGUEZ (Mexique)**

Faculté de médecine, Rhumatologie  
Direction de thèse : Axel FINCKH

**Reproductive Factors as Predictors of Disease Development and Disease Progression in Rheumatoid Arthritis Patients**

**Mots-clés:** Rheumatoid arthritis, Autoantibodies, Reproductive factors, Women

Rheumatoid arthritis (RA) is an autoimmune disease more prevalent in women, with a female to male ratio of 3 to 1. However the role of female hormonal factors in the development of the disease has not been clearly elucidated and the impact on the progression of the disease is controversial.

**Objectives.** To analyze the association between female hormonal factors and the development of systemic autoimmunity associated with RA in women at increased risk for RA, namely first-degree relatives of patients with RA (RA-FDRs).

**Methods.** In an ongoing cohort study of RA - FDRs, we analyzed all women with available anti-citrullinated protein antibodies (ACPAs) status. The primary outcome was ACPA-positivity. The predictors of interest were female hormonal factors, such as oral contraceptives, breastfeeding, postmenopausal status, early postmenopausal period and total number of ovulatory years.

**Results.** A total of 768 women RA-FDRs were analyzed, of which 42 (5%) had developed ACPA-positivity. ACPA-positive women were older (52 versus 44 years,  $p=0.001$ ). Hormonal factors significantly and independently associated with the presence of ACPA were the postmenopause ( $p<0.001$ ) and the early postmenopausal period ( $p=0.040$ ).

**Conclusions:** In women at increased risk of RA, characteristic systemic autoimmunity was associated with menopause, suggesting that the acute decline in ovarian function might contribute to the development of autoimmunity associated with RA and potentially to the increased risk of RA in women. In a second stage we are going to analyze the impact of female hormonal factors on the progression of the disease.

**Présentation orale, Session 1**

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**Mohamad ALTINAWI (Syrie)**

Faculté des lettres, Français langue étrangère  
Direction de thèse : Claire FOREL

**L'identification des besoins langagiers des étudiants en fonction du contexte et de public particuliers : le cas de l'enseignement universitaire du français à l'université de Damas**

**Mots-clés:** Français langue étrangère, recherche qualitative, besoin langagier, français de spécialité, Discipline dite Non Linguistique.

Cette thèse vise en premier lieu à discuter de différents buts de l'enseignement/apprentissage du français langue étrangère (FLE) en contexte universitaire syrien. Ensuite, elle abordera le sujet des besoins langagiers en FLE des étudiants ainsi que des compétences langagières à développer dans le cadre de l'étude des disciplines non linguistiques sans oublier les besoins professionnels futurs. En se posant la question des compétences linguistiques, sociolinguistiques, pragmatiques et même académiques nécessaires, nous touchons à des problèmes théoriques relevant du Français sur Objectifs Spécifiques (FOS) et du Français sur Objectifs Universitaires (FOU) ; ainsi nous tenterons de montrer l'articulation entre les deux.

La thèse comprendra donc une partie théorique ainsi qu'une enquête de terrain tant auprès des enseignants, des responsables académiques et des étudiants.

**Poster**

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**Majid ASKRI (Tunisie)**

Faculté des Lettres, Linguistique  
Direction de thèse : Christopher LAENZLINGER

**L'impersonnel et l'inversion non interrogative en français moderne: structures, voix, archaïsmes et/ou système ?**

**Mots-clés:** L'impersonnel, l'unipersonnel, l'inversion de sujet, l'inversion non interrogative

Il sera question dans cette recherche de deux tournures phrastiques du français moderne, à savoir la phrase impersonnelle illustrée en (1')



et la phrase assertive à inversion non interrogative illustrée en (2').

(1) Des drôles de bruits courent en ville → (1') Il court des drôles de bruits en ville.

(2) Les premiers invités arrivèrent bientôt → (2') Bientôt arrivèrent les premiers invités.

La recherche consistera en une étude comparative des deux types de phrases. L'exemple présenté ci-dessus laisse voir, en effet, un certain parallélisme structurel. Puis à juger par l'ancienne langue, les deux types de phrases auraient connu la même évolution. En effet, en ancien français où l'ordre des mots était beaucoup plus libre, l'apparition en tête de phrase d'un « il » explétif ou d'un circonstant entraînerait la postposition du sujet.

Il sera également question dans cette étude de l'éventuelle existence de système ou de voix formés par les deux types de phrases. En effet, ils présentent tous deux un ordre de mots qui serait une sorte de marquage linguistique par lequel le locuteur chercherait un certain profil communicatif, autre que celui du schéma canonique. Cette structuration de l'information rappelle sans équivoque une autre tournure bien connue, à savoir la forme passive. Ainsi comptons-nous bien approfondir le travail dans ce sens-là.

Enfin, l'aperçu diachronique et le croisement des plans d'études à la fois syntaxique, sémantique et discursif permettraient sans doute d'apporter des réponses satisfaisantes aux questions soulevées par ces deux tournures : ce type de structure serait-il une simple survivance de l'ancienne langue? Ou plutôt la preuve du développement d'un système de voix tout comme la voix passive ?

### **Présentation orale, Session 2**

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#### **Jacques AYMERIC (Cameroun)**

Faculté des sciences, Anthropologie & archéologie africaine  
 Direction de thèse : Eric HUYSECOM & Anne MAYOR

#### **Structures Défensives Précoloniales au Sénégal Oriental: étude archéologique, ethnographique et historique**

**Mots-clés:** Fortifications, Tata, Evolution

#### **Technique, Sénégal**

Dans un contexte d'insécurité, la protection de collectivités humaines sédentaires ou semi-nomades se traduit souvent de deux manières : soit par la migration pour la recherche d'un espace plus sécurisé, soit par la sécurisation du lieu déjà occupé. A l'époque précoloniale, plusieurs communautés du Sénégal oriental ont opté pour la sécurisation des lieux qu'elles occupaient. Ce choix s'est traduit par la fortification de nombreux sites d'habitat.

Aujourd'hui, les ruines visibles de ces fortifications suscitent des interrogations, quant à la compréhension de leur organisation en système défensif, et à la connaissance des techniques qui ont été utilisées pour leur mise en place. Pour répondre à ces questions, notre démarche combine trois approches complémentaires (archéologique, historique et ethnographique). Grâce aux prospections et fouilles archéologiques, nous identifions et caractérisons les sites fortifiés. Ces données sont complétées par les enquêtes ethnographiques et l'étude des sources historiques, qui nous permettent de documenter les aspects organisationnels et fonctionnels de ces structures.

Au cours de deux missions (janvier à mars 2016 et décembre 2016 à mars 2017), nous avons identifié treize sites. Les fouilles archéologiques menées sur quatre de ces sites nous ont permis de mettre à jour des fondations de fortifications écroulées, nous avons aussi caractérisé différentes techniques de constructions de ces structures, ainsi qu'une variabilité de matériaux utilisés. Au cours de la prochaine mission, nous mènerons de nouvelles enquêtes ethnohistoriques, prospections et fouilles archéologiques dans la zone sud du Sénégal Oriental.

Cette thèse est un volet de l'étude des changements techniques intervenu au sein des royaumes africains précoloniaux. L'étude de ces changements est l'un des axes de recherche du programme Peuplement Humain et Paléoenvironnement en Afrique du Laboratoire Archéologie et Peuplement de l'Afrique.

### **Présentation orale, Session 2**

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**Allan BERROCAL (Costa Rica)**

Faculté des sciences de la société, Science de service informationnel, Quality of Life Technologies Group

Direction de thèse : Katarzyna WAC

**COMpaSS: Context- aware cOMputational Model of streSS coping**

**Mots-clés:** Psychological stress, wearable sensors, stress coping, machine learning, behavior change

My research topic combines methods from traditional information systems, machine learning and human computer interaction applied to the domain of quality of life technologies; specifically, the assessment and treatment of human psychological and physiological stress.

The research objective is to explore the area of automatic assessment and prediction of stress, as well as studying methods to assist in the coping process, leveraging wearables and smartphones as the main interaction with individuals. We aim to collect empirical data from experiments to develop algorithms and tools for assisting individuals in self-awareness and stress coping.

My overall research question is Can commercially available technologies such as wearables and smartphones be leveraged to detect stress buildup and assist individuals in the process of coping with this stress?

The projected approach involves both qualitative and quantitative methods as follows:

- Gathering user's opinions and backgrounds (e.g., personality types) via interviews and surveys.
- Automatic recording of data corresponding to individual behavior from multiple sensors embedded in a smartphone.
- Gatherings momentary user's stress load assessments and stress coping assessments via ESM (experience sampling method). We will collect both individual reported and data reported by an observer, e.g. friend, or a partner.

- Using wearable devices to obtain physiological measurements such as Heart Rate (HR), its variability (HRV), galvanic skin response (GSR), Sleep quality metrics.

- As an interview method, a DRM (day reconstruction method) will be used for 24h recalls to capture user's reflections about specific events.

**Présentation orale, Session 1, et Poster**

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**Jeanne Armelle BILOBE (Cameroun)**

Faculté des sciences, Sciences de la Terre  
Direction de thèse : Elias SAMANKASSOU

**Structure and tectonostratigraphic evolution of the Mamfe sedimentary basin, southwest Cameroon**

**Mots-clés:** Mamfe basin, sediment, geochemistry, petrography, provenance

The study of sedimentary basin is very important in the field of sedimentary geology to better known depositional history and timing of evolution as a key for evaluation of the sedimentary rocks characteristic. Mineralogical and geochemical analyses of 63 samples collected from the Mamfe basin, Southwest Cameroon have been analysed to constrain their provenance, tectonic setting, depositional environment, paleoclimate and to explore the hydrocarbon reservoir potential of the basin. The mineralogical based on thin sections analysis using optical microscopy indicate that sediment were undergone a moderate to long transport before their deposits. Geochemical parameters CIA and PIA values of these samples suggest that Mamfe sediment are compositionally mature to immature and related to moderate and extreme weathering.

**Présentation orale, Session 1, et Poster**

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**Islam BORINCA (Kosovo)**

Faculté de psychologie et des sciences de l'éducation, Psychologie sociale  
Direction de thèse : Juan Manuel FALOMIR PICHASTOR

**(Mis)Understanding Prosocial Outgroup Behaviors**

**Mots-clés:** Inter-group relations, Miss-

perceived, Prosaically, Context, Prejudice and discrimination

Imagine walking through an unknown city late at night and losing the way back to your hotel. An immigrant approaches you and offers to take you to the hotel. How would you interpret this out-group member behavior? Would you think that he/she is actually helping you or that he/she is doing that for other purposes? The main goal of the present project is to identify the psychological mechanisms that shape the interpretation and the (mis)understanding of out-group prosocial behaviors, by considering both ethnic majority and minority perspectives. More concretely, the present project aims at exploring how interethnic prejudice for majority groups and perceived ethnic discrimination for minority groups would play a key role in triggering this process, by decreasing the perceptions of outgroup members' empathy and leading to a misinterpretation of their altruistic behaviors. Further, the project aims at identifying specific psychosocial strategies that may inhibit the misinterpretation of outgroup prosocial behaviors. The hypotheses of the project will be verified by considering different intergroup settings and experimental paradigms.

I believe that studying the psychological processes underlying the (mis)interpretation of outgroup behaviors appears highly relevant in the increasingly multiethnic Swiss context, as it could ultimately contribute to promoting harmonious and positive interethnic relations.

### **Présentation orale, Session 1**

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#### **Alaeddine CHERNI (Tunisie)**

Faculté des sciences, Botanique et biologie végétale

Direction de these: Xavier PERRET

#### **Probing the diversity of nitrogen-fixing plant-symbiotic bacteria in soils of Tunisia**

**Mots-clés:** Symbiosis, legumes, rhizobia, diversity, Tunisia.

Mostly cultivated in the north of Tunisia, fenugreek (*Trigonella foenum-graecum*) and chickpea (*Cicer arietinum*) are important legume crops for the local economy. Both, of these legumes may form beneficial

associations with specific soil bacteria that are collectively known as rhizobia and which fix atmospheric nitrogen (N<sub>2</sub>) for the benefit of host plants. Symbiotic N<sub>2</sub>-fixation occurs inside root nodules within which rhizobia form persistent endocellular colonies. By doing so, rhizobia directly promote plant growth but also naturally improve soil fertility in crop rotation systems when they are used in combination with the appropriate legume host. With the long-term aim to provide local farmers with proficient symbiotic bacteria, we probed the diversity of rhizobia indigenous to fields of Northern Tunisia where fenugreek and chickpea were cultivated: legume hosts were grown in samples of these soils and root nodules were then used to isolate rhizobia. Interestingly, the selected soils yielded contrasted profiles of symbiotic bacteria. Although *Sinorhizobium (Ensifer) medicae* isolates proficient for *T. foenum-graecum* populated all of the four tested soils, less efficient *Sinorhizobium meliloti* symbionts seemed restricted to the Amdoun region. By contrast, *Mesorhizobium mediterraneum* isolates that are good symbionts of *C. arietinum* were only found in Amdoun while less proficient strains of mesorhizobia were found in all soil samples. Further more, only soil samples from Menzel Bourguiba yielded isolates of *Rhizobium gallicum* capable of associating with the promiscuous legume cowpea. Trapping experiments carried out in laboratory conditions do not necessarily reflect the distribution of rhizobia in soils, but our current results highlight the complex dynamic of bacterial populations in cultivating soils where crop history, soil composition, climate and competing soil bacteria are amongst the factors that influence the distribution and abundance of symbiotically proficient strains.

### **Présentation orale, Session 2**

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#### **Siaka CISSE (Mali)**

Faculté des sciences de la société, Démographie et socioéconomique

Direction de thèse: Claudine SAUVAIN-DUGERDIL

#### **Inégalités d'accès et de recours aux soins de santé maternelle : le cas du Mali**

**Mots-clés :** Inégalités, sources d'amélioration, configurations familiales, capital social, perceptions.

La santé maternelle a longtemps été une question négligée dans les pays en voie de développement. Ce n'est que vers le milieu des années 80 que « quelques militants et professionnels "éclairés" ont commencé à se mobiliser au regard du niveau inquiétant de mortalité maternelle » (Van Lerberghe et De Brouwere, 2000 : 1). La conférence sur la Maternité sans Risque (Nairobi, 1987) a marqué un tournant important dans la prise en compte de la santé maternelle comme un problème de santé publique (Bergström et Goodburn, 2000). Cette prise de conscience a été soutenue dans d'autres rencontres internationales dont la conférence internationale sur la Population et le Développement (CIPD, 1994) et le Sommet du Millénaire des Nations Unies (2000) pour le Développement. Ce qui a permis une augmentation de la proportion d'accouchements assistés de 59% et une réduction du taux de mortalité maternelle de 45% depuis 1990 (Nations Unies, 2015).

Cependant, malgré cet intérêt accordé à la santé maternelle, la grossesse reste associée à des risques énormes pour les mères dans les pays en développement où les taux de mortalité maternelle sont 14 fois plus que ceux enregistrés dans les pays développés (Nations Unies, 2015). Le continent africain enregistre 57% de tous les décès (UNFPA, 2013) et le Mali est l'un des pays où le niveau de mortalité est l'un des plus élevés (368 décès pour 100 000 naissances EDSM-V, 2012)

Nous examinerons quatre aspects qui restent peu explorés particulièrement au Mali, à savoir les sources de l'amélioration du recours aux soins, les rôles respectifs des facteurs individuels et communautaires dans les inégalités géographiques, le lien entre les configurations familiales, le capital social de la femme et la demande de soins, et enfin les perceptions des femmes de la nécessité des soins ainsi que leur implication sur l'issue de la grossesse.

### **Présentation orale, Session 2**

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### **Marcela GARCIA (Honduras)**

Faculté des lettres, Histoire de l'art et musicologie

Direction de thèse : Leïla EL-WAKIL

### **Architecture Centers: Institutional Framework and Exhibition Discourse**

**Mots-clés** Architecture Centers, Architecture Exhibitions, Contemporary Architecture

Architecture centers are a new museum institution category that starts appearing in Europe during the early 1980s. Not only are they numerous, they also have rich and sometimes very long trajectories in which they discuss, exhibit, and publish on contemporary architecture. However, research on these centers is still very rare, which contrasts with the abundant – but mostly monographic – material available on architecture museums and exhibitions. This presentation aims at discussing the results of my research on architecture centers, conducted through four case studies in France, Germany, and Austria. I start by presenting the institutional framework of these centers, their characteristics, sources of funding, and activities, to trace their boundaries in relation to architecture museums and galleries. I then focus on their exhibitions to show the different discourses they can develop on local and international architecture. I argue that, depending on their institutional framework, architecture centers will put forward a gallerist or a collective approach when it comes to choosing the subjects of their exhibitions. These two approaches will define the role of the center when it comes to presenting or criticizing local issues. Some centers will actively participate on the debates concerning local projects, approving them, openly confronting them, or even suggesting new ones. Other centers will instead choose to have a more neutral stance when it comes to local debates, and will therefore discuss more general issues that can resonate anywhere. In both cases, architecture centers go beyond merely presenting information to the public. They mediate architecture to validate it as a discipline and a profession, and in the long run, to have an impact on it.

**Présentation orale (Session 1)**

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**Julian GAVIRIA (Colombie)**

Faculté de psychologie et des sciences de l'éducation / Faculté de médecine  
Neuroscience fondamentale, Neurology and Imaging of cognition lab (Labnic)  
Direction de thèse : Patrik VUILLEUMIER

**The Influence of transient affective states on Attention**

**Mots-clés:** Affective neuroscience, Cognitive neuroscience, Attention, Emotion, Brain

I am interested in the lasting effects of emotions on the brain's intrinsic functional connectivity, and how such intrinsic organization might predict the influence of transient emotions on cognitive processing. For our studies, we use fMRI, EEG, and physiological data.

**Présentation orale, Session 1, et Poster**

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**Alice GERLACH (Brésil)**

Faculté des sciences, Botanique et biologie végétale, Conservatoire et Jardin botaniques de la Ville de Genève  
Direction de thèse : Philippe CLERC

**Systematics of the lichen genus *Usnea* Adans (Parmeliaceae, lichenized Ascomycetes, Fungi) with emphasis on southern Brazil**

**Mots-clés:** Chemotaxonomy, diversity, molecular studies, Neotropics, species delimitation

The lichen genus *Usnea* comprises fruticose members of the Parmeliaceae and it is a highly diverse and widely distributed currently including ca. 350 species. The exceptional morphological plasticity of the species towards environmental parameters causes difficulties in the circumscription of species, especially in the tropics. In the present thesis, the taxonomy of the genus *Usnea* was investigated in Brazil, focusing on the Southern Region. Particular emphasis was given to the sexually reproducing species, the pendulous species and to the saxicolous and pigmented species. A new method to check by thin layer chromatography the presence of tri-terpenoids was routinely used, revealing so far undiscovered substances in the medulla. These

substances proved to be useful discriminators in the delimitation of species. We identified ca. 90 species (17 fertile, 24 pendulous, ca. 24 shrubby sorediated, 17 pigmented, five saxicolous and three species of the subgenus *Eumitria*) and provided descriptions as well as identification keys for most of them. For instance, five fertile species were newly described and three were newly reported for Brazil. In addition to the taxonomic studies, the species delimitation of the widely distributed *Usnea cornuta* Körb was investigated using the nuclear ribosomal genes ITS rDNA, as well as two protein-coding genes RPB1 and Mcm7. The multispecies coalescent species delimitation showed that this species complex will have to be splitted in several small species, indicating that the diversity of Neotropical *Usnea* species is higher than previously thought. In the light of molecular data, species with different chemical compounds tends to former distinct lineages. We conclude that the combination of morphological, anatomical, chemical and molecular characters are fundamental for the species delimitation. More studies using different methods of the multispecies coalescence theory will be needed to better understand species delimitation of the Neotropical species before reaching a phylogenetical understanding of the genus worldwide.

**Poster**

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**Lucía GUERRA (Argentine)**

Faculté des Sciences, Sciences de de la Terre de l'Environnement  
Directeur de thèse : Daniel ARIZTEGUI

**Regional paleoclimate reconstructions in the subtropics of South America from high-altitude lake sediments at the Argentinean Eastern Cordillera (22°-26°s)**

In order to improve the quality of the global climate models along the Quaternary, it is important to develop improved regional records of climate change over the Southern Hemisphere. Currently, the subtropics of South America at the east of the Andes present scarce amount of paleoclimatic information and controversial results can be found when reconstructions along different latitudes are

compared. In particular, the Eastern Cordillera of Argentina (22°-26°S) has a strategic position to study changes in the past atmospheric circulation pattern which regulates the water availability in South America. The main goal of the postdoctoral research is to analyze sedimentary records retrieved from high-altitude lakes (> 4100 m a.s.l.) located in different environments from Eastern Cordillera. Microscopical geochemical and physical changes along lake-sedimentary cores are proposed to be analyzed at the Université de Genève under the supervision of Professor Daniel Ariztegui. Lake records from Eastern Cordillera combined with previous and present research of multiple climatic archives in the region will supply critical information for obtaining a more realistic approach of regional paleoclimate reconstructions at middle latitudes of South America.

## Poster

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### Sutida JANSOD (Thaïlande)

Faculté des sciences, Chimie minérale et analytique  
Direction de thèse : Eric BAKKER

#### **Electrochemical Ion-Transfer Mediated by a Novel Os(II)/(III) Compound with Thin Membrane**

**Mots-clés:** Thin membrane, selective ion-transfer, redox probe

Selective ion-transfer through thin layer membranes backside contacted with films of electropolymerized redox probes has been recently demonstrated. The electrochemical oxidation/reduction of the probe is coupled to ion release/extraction processes resulting in Gaussian shaped reversible peaks, which experience a potential shift or a peak current increase with an increase in the ion activity depending on bulk ion activity in the sample. Interestingly, the incorporation of several ionophores in thin membranes based on a cation exchanger allows multi-ion detection by following the potential shift of separate peaks corresponding to different cations.

Inspired by this concept, and to use a well-defined molecular redox probe instead of

conducting polymers, we have prepared a new compound based on an Os(II) center as potential redox probes. In principle, the oxidation of Os(II) to Os(III) in membranes based on cation exchanger will mediate ion transfer process in analogy to earlier systems based on conducting polymers.

The electrochemical behavior of the novel Os(II) compound is here investigated by cyclic voltammetry in both organic solvents and thin layer membranes. Observed signals are reproducible with consecutive scans, indicating that the Os(II)/Os(III) conversion occurs through a reversible stabilization of Os(III). This is the driven force for coupled ion transfer processes through the membrane.

The direct incorporation of the redox probe into the membrane expands the possibilities of application of this new generation of thin layer membranes using for the ring disk electrode (RDE). New results obtained by electrochemically interrogating the membranes at the backside of the membrane/sample interface will be discussed as well.

## Présentation orale, Session 2, et Poster

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### Swati KAMBLE (Inde)

Faculté des sciences de la société,  
Démographie et socioéconomie  
Direction de thèse : Michel ORIS

#### **Caste and gender inequalities: Policy and Dalit women in Maharashtra, India**

**Mots-clés:** Intersectionality, Caste discrimination, Dalit women in India, Street level bureaucracy, policy process in India

The main research objective is to study how caste and gender inequalities are addressed in policy-making in the Indian state of Maharashtra. Stemming from this objective, the main research question is how are policies formulated and implemented in Maharashtra? In order to understand the process and embedded inequality, I intend to use Intersectionality as an analytical framework. The Research methodology will be qualitative. Desk research will be used primarily for intersectional analysis of policy scripts. To substantiate the analysis, semi structured

interviews with various stakeholders, like representatives of relevant governmental institutions and Dalit women activists will form a substantial part of this research as will the interviews with policy experts and participant observation in selected policy-making institutions. This will be complemented by a gender and caste-sensitive analysis of relevant state-level policies and their implementation in the fields of Education, Employment, Housing, Health, and Political Participation and in particular with regard to the 'Maharashtra State's Women Policy' and 'The Scheduled Caste Sub-Plan'. The ultimate objective of this research is to stay out from an intersectionality blind policy approach that does not consider the multidimensionality of marginalization and to propose more inclusive policies of poverty reduction that explicitly deal with caste and gender inequalities.

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### Présentation orale, Session 1

#### Brook KIDANE (Ethiopie)

Faculté de droit, Droit international public et organisation internationale

Direction de thèse : Gabrielle Zoe MARCEAU

#### Restructuring jurisdictional mayhem: The quest for a better coherence between RTAs and the WTO

**Mots-clés:** International Law, Jurisdiction overlap, WTO, RTA, Choice of forum

As RTAs (Regional Trade Agreements) proliferate, the relation it has with the multilateral structure of the World Trade Organization (WTO) is an uneasy one particularly the dispute settlement mechanism. The WTO quasi-automatic jurisdiction not only created a dispute settlement mechanism but also excludes the usage of other forums. Almost all regional trade agreements have also created a dispute settlement mechanism whereby a significant number of them enshrined a choice forum clause and also a considerable amount of them creates an exclusive dispute settlement mechanism. This has led to an outright conflict with the system of the WTO DSB (Dispute Settlement Body). By far there is no solution to avoid this inconsistency and conflict.

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### Présentation orale, Session 1, et Poster

#### Abderrahmen MEDIOUNI (Tunisie)

Faculté d'économie et de management / Haute école de gestion, Institute of Management  
Direction de thèse : Nicolas ZUFFEREY (GSEM) & Naoufel CHEIKHROUHOU (HEG)

#### Designing Disaster Logistics Networks using Stochastic Optimization.

**Mots-clés:** Disaster Management, Emergency relief distribution, Emergency Logistics

Disaster have always been considered as extraordinary events. But their frequency and severity are increasing dramatically over the years. Improving the quality of relief operations is becoming necessary and disaster logistics networks (DLN) are an important factor. This PhD work will consider designing pre- and post-disaster operations of relief networks. Moreover, at second stage, in order to reduce the gap between this work and real environments, we consider that facilities are affected by disaster, unlike other studies in the literature, and a proper strategic plan is proposed to improve the injured people serving time. In emergency situations human behavior has a huge impact on operations progress and not considering the uncertainties increase in similar conditions could slow down relief distribution, so we consider a risk-averse network by applying a proper risk measure in order to better capture the effects of inconsistency. To solve the proposed models, a novel decomposition method will be developed. The models and the solution methods will be validated using real sets from a case study.

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### Présentation orale, Session 2

#### Roch Modeste MILLOGO (Burkina Faso)

Faculté des sciences de la société, Démographie et socioéconomie

Direction de thèse : Clémentine ROSSIER

#### Diversité des modes de formation de la famille dans des contextes de fécondité « basse » en Afrique au sud du Sahara

**Mots-clés:** Famille, fécondité, Afrique

L'Afrique subsaharienne demeure le continent qui détient les taux de fécondité les plus élevés

au monde et où l'utilisation des méthodes contraceptives est la plus faible. Une baisse de la fécondité a toutefois été observée ces dernières décennies sur le continent, et cela avant tout dans des localités économiquement plus favorables. Dans ces poches de fécondité "basse" on remarque cependant des comportements de formations de la famille (entrée en vie féconde, intervalles entre les naissances, nombre d'enfants souhaités) qui diffèrent fortement. L'objectif de cette recherche est de fournir des explications contextualisées à la diversité des modalités de formation de la famille dans des contextes de fécondité "basse" en Afrique subsaharienne. Elle permettra de documenter les différences contextuelles (normes en matière de reproduction, accès aux services de contraception) conduisant à des modalités d'entrée en vie féconde, d'espacement des naissances et de limitation de la taille de la famille différentes, et à comprendre dans chaque cas le rôle joué par le recours à la contraception. Les sources de données mobilisées seront celles des Systèmes de Surveillance Démographique et de Santé et les Enquêtes Démographiques et de Santé.

### **Présentation orale, Session 2**

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#### **Somabha MOHANTY (Inde)**

Institut de Hautes études internationales et du développement, Science politique / Relations internationales

Direction de thèse : Elisabeth PRUGL (co-supervision: Ravi BHAVNANI)

#### **Participatory Governance, Social Inequality and the Urban Poor in India**

**Mots-clés:** Democracy, citizen participation, urban, inequality, India

India is a decentralised political system with three tiers of government - central, state and local (urban and rural). However particularly in the urban case, state governments retain extensive control over both the powers and the design of local government. In recent years, low levels of urban development and high socioeconomic inequality in urban India has led to a growing national debate on urban policy and governance reform of cities. Toward this, a number of governance reforms have been

suggested by senior political officials and by key civil society stakeholders. A general theme of these reforms tends to be measures to increase democratic decentralisation in the form of increasing citizen participation in local governance, and strengthening the collaboration between citizens and local government officials. These draw inspiration from well known participatory reforms carried out in a number of municipalities in Brazil for example where they have been highly successful. However, can similar reforms be effective in a country like India where social heterogeneity is high along many identity dimensions, where economic inequality is very high, and where a number of social groups are highly marginalised within society? Through a mix of interviews and field experiments in India, the proposed research aims to explore how participatory reforms in India are implemented on ground, whether socioeconomically excluded groups and their interests are genuinely included in these participation processes, and whether the suggested reforms would actually result in more inclusive and efficient urban local development. While the dissertation is still in a preliminary phase, this presentation will discuss findings from preliminary fieldwork carried out in India over this forthcoming summer, and discuss the contribution of this research to both research and democracy strengthening initiatives.

### **Présentation orale, Session 1**

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#### **Stéphane NJOH EKOUME (Cameroun)**

Faculté des sciences, Physique nucléaire et corpusculaire

Direction de thèse : Teresa MONTARULI - Mimo DELLA VOLPE

#### **Construction of a small prototype to validate an innovative camera for high-energy Gamma-ray Astronomy**

**Mots-clés:** Cherenkov Telescope Array, High energy Gamma-ray, Astronomy

My thesis project is about the construction of a small prototype of a Cherenkov telescope capable of detecting PeV cosmic ray induced showers with a camera of silicon photomultipliers. Traditionally,



photomultipliers have been used for the pixels of the camera but this project deals with the application of new sensors in the gamma-astronomy field: silicon photomultipliers (Geiger mode APD) with preamplifier and readout/trigger electronics designed to optimize the performance of these sensors for (atmospheric) Cherenkov light detection.

This small prototype is similar in concept to the larger camera that will be put on a 4m telescope for the Cherenkov Telescope Array (CTA). CTA is an initiative to build the next generation ground-based very high energy gamma-ray instrument. It will serve as an open access observatory to a wide astrophysics community and will provide a deep insight into the non-thermal high-energy universe.

The small prototype I am building allows me to understand the physics behind the large CTA observatory and to design electronics and take real data.

#### **Présentation orale, Session 1, et Poster**

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##### **Vasundhara TYAGI (Inde)**

Faculté des sciences, Sciences pharmaceutiques

Direction de thèse : Yogeshvar N. KALIA

##### **Targeted drug delivery to the buccal mucosa: Development of new techniques and therapeutic strategies**

**Mots-clés:** Buccal mucosa, oral cavity, iontophoresis

Oral diseases are among the most prevalent diseases affecting human beings. Given the accessibility of the oral cavity, topical delivery of therapeutic agents is clearly a more rational and targeted approach than conventional systemic administration. In addition to ready access, local delivery to the oral cavity avoids the hepatic first pass effect and the need to administer unnecessarily high doses of drug to compensate for poor systemic bioavailability. Although different areas of the oral cavity present different permeabilities, "enhancement techniques" can be used to facilitate drug delivery to even the most recalcitrant regions; furthermore, any impact on barrier integrity can be countered by the rapid repair observed in the oral mucosa.

Nevertheless, there are several challenges that must be overcome – these include the need to have sufficiently bioadhesive formulations, the risk of rapid drug loss from the site of absorption by salivary scavenging and mechanical stress, poor patient compliance due to unpleasant taste and even accidental swallowing of the formulation. Therefore, the ideal drug formulation should enable rapid, local delivery to the target site and cause minimal irritation and discomfort. Iontophoresis is an active enhancement technique that involves the application of low current densities to the buccal mucosa to increase the transport of ionized drug molecules into the membrane. The aim of this thesis project has been to investigate the feasibility of using short duration buccal iontophoresis to achieve therapeutically relevant drug concentrations in the mucosa and so provide a new approach to treat diseases of the oral cavity. The first part of the project involved an investigation into the iontophoretic delivery to the buccal mucosa of a vasoactive agent, buflomedil hydrochloride, which has conventionally been prescribed systemically for the treatment of submucosal fibrosis but which can also provoke dangerous side-effects. Quantification of the amount of drug present in the tissue, i.e. its local bioavailability, enabled an evaluation of the feasibility of achieving therapeutically relevant delivery rates. The results confirmed that iontophoresis indeed enabled significantly greater delivery of buflomedil than simple passive administration and that therapeutic concentrations could be achieved after a relatively short duration of 10 minutes. Subsequent work has concerned the use of combination therapies to treat oral fibrosis and, in the final part of the thesis, the focus will be on the use of iontophoresis for the targeted delivery of chemotherapeutics for head and neck cancer.

#### **Présentation orale, Session 2**

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##### **Jeanne VERRIER (France)**

Institut de Hautes études internationales et du développement, Economie internationale

Direction de thèse : Ugo PANIZZA

### Three Essays in Finance and Development

**Mots-clés:** Credit access, Banks, Transmission of macroeconomic shocks, Discrimination

The thesis will consist of three separate chapters which address questions in the field of banking and development. The first chapter is almost complete and deals with how aggregate uncertainty dampens the transmission of monetary policy shocks in the United States. The second chapter will be about financial innovation and racial discrimination in mortgage lending. The third chapter is a project on predatory finance in the United States.

#### Présentation orale, Session 2

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##### Mateus VICENTE BARRETO PINTO (Brésil)

Faculté des sciences, Physique nucléaire et corpusculaire - ATLAS (CERN)

Direction de thèse : Giuseppe IACOBUCCI

##### Study of capacitively-coupled pixel sensors and HV-CMOS MAPS for ATLAS Inner Tracker high luminosity upgrade

**Mots-clés:** ATLAS CERN Pixel Sensor ASIC

The ATLAS experiment at CERN, in operation at the LHC since 2010, has a plan to replace its Inner Tracker in 2023 to improve its performance with regard to the increased collision rate provided by the Large Hadron Collider. The new Inner Tracking detector is planned to cover a larger area and be constructed using only position-sensitive Silicon pixel and strip detectors. The increase in the surface of pixel detectors needed with this upgrade raise the problem of the high cost per unit surface of the current pixel detector technology. For the production of the existing pixel detectors installed in the ATLAS experiment, an integrated circuit containing all the necessary electronics is attached to the Silicon pixel sensor using a technique called bump-bonding. This method consist of the deposition of  $\sim 20$   $\mu\text{m}$  solder bump on the integrated circuit for each pixel of the sensor. The integrated circuit containing thousands of bumps is then aligned on the Silicon pixel sensor and soldered to it using specialized machinery. The processing of the integrated circuit and sensor for attachment represent almost 50% of the cost associated to the

production and construction of ATLAS Inner detector. Capacitively-coupled pixel detectors (CCPDs) and HV-CMOS Monolithic Active Pixel Sensors (MAPS) are a new pixel detector technology. On CCPDs, the coupling between the electronic readout circuit and the pixels is done capacitively by a glue layer instead of through a direct connection through solder bumps. HV-CMOS MAPS are detectors where the sensor pixel is implemented in the same chip that contains the readout circuit. This allow for a major reduction of the new Inner Tracker construction cost and allows for the production of large areas of pixel detector needed for the new Inner Tracker.

#### Présentation orale, Session 1

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##### Nawel ZOUGGARI (Algérie)

Faculté des sciences, Biochimie

Direction de thèse : Ariane DE AGOSTINI

##### Implication of heparan sulfates as protection against tumor invasion: study in uterine endometrioid adenocarcinoma.

**Mots-clés :** Heparan sulfate, heparanase, endometrial adenocarcinoma, invasion, angiogenesis

Antithrombin-binding heparan sulfates proteoglycans (aHSPG) are present in endothelial basement membranes. Their anti-protease activity is thought to limit tissue remodeling and evidence in rodent ovary and human endometrial uterine adenocarcinoma suggest that they are down-regulated during angiogenesis and carcinoma development. Heparanase (HPSE) is an endo- $\beta$ -D-glucuronidase that cleaves heparan sulfate (HS) chains of proteoglycans (HSPG), and its expression has been associated with increased cell growth, invasion, and angiogenesis of tumors as well as with embryogenesis and tissue development. Furthermore GAGs are essential modulators of HPSE expression and location. Endometrial carcinoma is a frequent cancer with variable clinical outcome and currently, clinico-pathological factors available have limited value to predict tumor aggressivity in endometrioid carcinoma. There is thus an urgent need to identify new biological markers of invasiveness and based on these preconditions aHSPG could be good

candidates as a tissue stability marker, under scrutiny in this project. We propose to study the modulation of aHSPG in plasticity of the endometrium during endometrioid carcinoma development and invasion in order to establish the mechanism of regulation of aHSPG expression at the biosynthetic and degradation levels, in endometrial cell lines models (SNG-M and Ishikawa). We will target the key biosynthetic enzyme heparan sulfate 3-O-sulfotransferase-1, that confers antithrombin-binding to aHSPG and the heparan sulfate degradation enzyme HPSE. We will define the expression levels of these enzymes and downregulate their activities using siRNA and enzyme inhibitors. We will correlate such decrease to the amounts of aHSPG present in cell culture and study its impact on cell motility and invasion in vitro. These data will allow to evaluate the diagnostical and therapeutical potential of aHSPG to prevent tissue invasion in the endometrium.

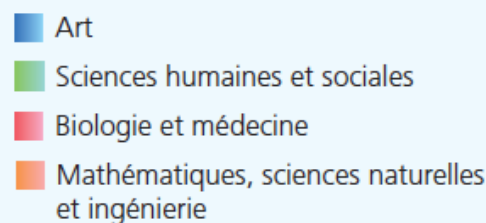
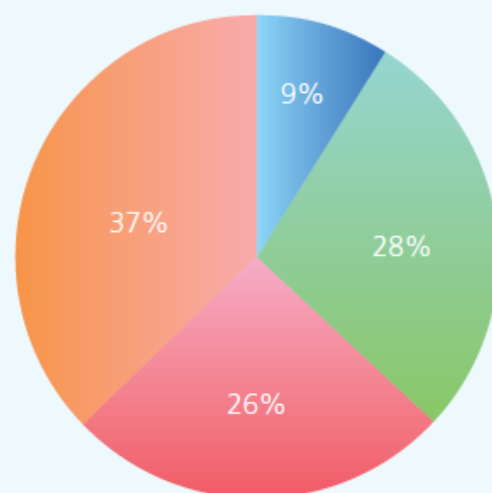
**Poster**

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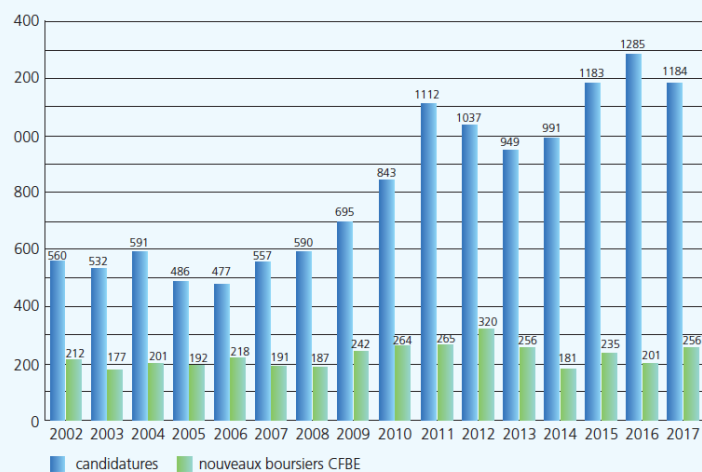
## La CFBE

- Depuis 1961, la CFBE octroyé plus de 8'000 bourses, dont près de 20% à l'UNIGE.
- Depuis 2013, ces bourses sont principalement des bourses de stage de recherche, de doctorat et de post-doctorat.
- En 2017, 40 nouvelles bourses ont été attribuées à l'UNIGE, sur un total de 256 bourses, pour 1'184 candidatures.
- 80 pays sur 184 ont reçu des bourses.

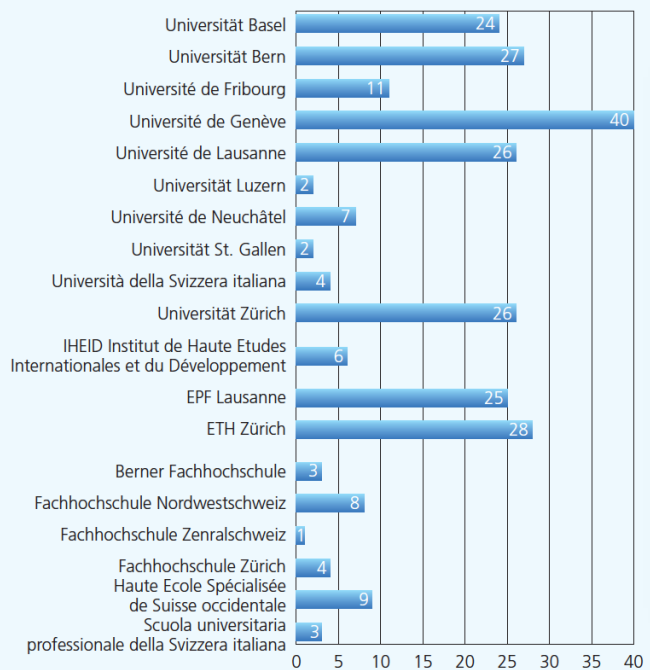
## Répartition des nouvelles bourses d'excellence de la Confédération attribuées en 2017, par discipline (en %)



## Nombre de candidatures et nombre de nouveaux boursiers CFBE depuis 2002



## Répartition des nouvelles bourses d'excellence de la Confédération attribuées en 2017, par institution d'enseignement



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