
LE STUDIUM
Loire Valley
Institute for Advanced Studies

ANNUAL SCIENTIFIC REPORT 2023

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THE PRESIDENT EDITORIAL

The year 2023 marks a new turning point for Le Studium Loire Valley Institute for Advanced Studies, which is now well on track with its 2021-2027 strategic plan to support its mission of internationalisation of research in the Centre-Val de Loire region. It now counts nine active invitation programmes that enable international highly qualified scientists to spend long residency periods and develop sustainable international collaborations with their counterparts. The diversity of themes and profiles that Le Studium catalyses and brings together is the very emblem of the institute, who continues to advocate the three qualities that were invoked from the very beginning: curiosity, imagination and intuition.

The year 2023 saw the launch of several new programmes to complement the traditional Smart Loire Valley Programme, which has been open to all scientific disciplines and experienced researchers for over twenty years. Le Studium, invited to join the European ATHENA University as an associate partner of the University of Orléans, welcomed its first researchers as part of the ATHENA Visiting Researchers programme launched at the same time. After joining the mobility programme of the Réseau Français des Instituts d'Etudes Avancées (RFIEA) alongside 6 other institutes, the FIAS (French Institutes Advanced Study) programme funded by the European Union's Marie-Curie Sklodowska actions, Le Studium welcomed a first wave of researchers at the start of the 2023 academic year and relaunched a new offer for 2024. In partnership with the Maison des Sciences de l'Homme du Val de Loire, Le Studium has opened the first edition of a Visiting Researchers programme.

In addition, as part of the four Ambition Research and Development CVL programmes initiated by the Regional Council to structure priority research areas in the region, Le Studium undertook to meet a number of international ecosystems and partners. These efforts have led to numerous missions abroad, interviews, delegation visits and presentation and discussion workshops. To date, three European projects have been submitted in partnership with these contacts, and a staff exchange programme will be launched in 2024.

Our programmes will have attracted forty international researchers to the region in 2023, for a total of 231 months of residency. With the support of the research institutes and laboratories that hosted them, Le Studium organised some forty international events and four public conferences.

We would like to thank the members of our independent Scientific Council for their exceptional and faithful collaboration, who give the necessary credit to our activities and devote their time to the selections.

Thank you to our partners who are supporting us in our exemplary approach. First and foremost our regional and funding partners, the European Union, the Centre-Val de Loire Regional Council, Orléans Metropole, the Universities of Orléans and Tours all our scientific partners: BRGM, INRAE, CEA, INSERM, INSA, CNRS. It is also important to mention the industrial members of our committees and programme partners, who take the time to advise us on the best ways to promote innovation. And it's essential to underline the daily dedication of Le Studium's staff, who are fully committed to the success of our programmes.

For us, science has faces, smiles and human personalities, and discovery is nourished by this multidisciplinary landscape. Respect for differences and budding friendships are also part of the Le Studium experience. We hope you enjoy discovering them in this annual report as much as we enjoyed welcoming them.

Mr Yves-Michel Ginot,
President

L'ÉDITO DU PRÉSIDENT

L'année 2023 est un nouveau tournant pour l'Institut d'études avancées (IEA) Le Studium Loire Valley qui se voit bien engagé dans son plan stratégique 2021-2027 pour accompagner sa mission d'internationalisation de la recherche en région Centre-Val de Loire. Il compte désormais neuf programmes d'invitation actifs qui permettent à des scientifiques hautement qualifiés de venir séjourner en région pour un temps long et de développer des collaborations durables. La diversité des thématiques et des profils que l'institut catalyse et réunit est l'emblème même du Studium qui prône toujours les trois qualités invoquées dès sa création : curiosité, imagination et intuition.

Cette année 2023 a été marquée par la mise en place de plusieurs nouveaux programmes venant complémenter le traditionnel Smart Loire Valley Programme ouvert depuis plus de vingt ans à toutes les disciplines scientifiques et aux chercheurs expérimentés. Le Studium, invité à rejoindre l'Université européenne ATHENA, en tant que partenaire associé de l'Université d'Orléans, a accueilli les premiers chercheurs dans le cadre du programme ATHENA Visiting Researchers lancé à cette occasion. Après avoir rejoint le programme de mobilité du Réseau Français des Instituts d'Etudes Avancées (RFIEA) aux côtés de 6 autres instituts, le programme FIAS (French Institutes Advanced Study) financé par les actions Marie-Curie Sklodowska de l'Union européenne, Le Studium a accueilli une première vague de chercheurs à la rentrée 2023 et relancé une nouvelle offre pour 2024. En partenariat avec la Maison des Sciences de l'Homme du Val de Loire, Le Studium a ouvert la première édition d'un programme de Visiting Researchers.

Par ailleurs dans le cadre des quatre programmes Ambition Recherche et Développement CVL initiés par le Conseil régional pour structurer les thématiques de recherche prioritaires en région, Le Studium s'est attelé à aller à la rencontre de plusieurs écosystèmes et partenaires internationaux. Ces efforts ont donné lieu à de nombreuses visites à l'étranger, interviews, accueils de délégations et ateliers de présentations et réflexions. A ce jour trois projets européens ont été déposés en partenariat avec ces contacts et un programme d'échanges de personnels verra le jour dès 2024.

Nos programmes auront permis la visite de quarante chercheurs internationaux sur le territoire en 2023 pour 231 mois de résidence. Avec l'appui des instituts et laboratoires de recherche les ayant accueillis, Le Studium a organisé une quarantaine d'événements internationaux et quatre conférences grand public.

Nous tenons à remercier la collaboration exceptionnelle et fidèle des membres de notre Conseil scientifique indépendant qui apportent le crédit nécessaire à nos activités et consacrent du temps aux sélections.

Merci à nos partenaires qui nous soutiennent dans notre démarche exemplaire. Tout d'abord nos partenaires territoriaux et financeurs, l'Union Européenne, le Conseil Régional Centre-Val de Loire, Orléans Métropole, les Universités d'Orléans et de Tours, et tous nos partenaires scientifiques : BRGM, INRAE, CEA, INSERM, INSA, CNRS. Il est important également de citer les membres industriels de nos comités et partenaires de programmes qui prennent le temps de nous éclairer sur les meilleurs moyens de favoriser l'innovation. Et il est essentiel de souligner également l'implication quotidienne du personnel du Studium qui s'engage pleinement dans la réussite de nos programmes.

Pour nous, la science a des visages, des sourires et des personnalités humaines, et la découverte se nourrit de ce paysage pluridisciplinaire. Le respect des différences et les liens qui se nouent font aussi partie de l'expérience Le Studium. Nous vous souhaitons autant de plaisir à les découvrir dans ce rapport annuel que nous avons eu à les accueillir.

M. Yves-Michel Ginot,
Président

IDENTITY & MISSIONS

***LE STUDIUM Loire Valley Institute for Advanced Studies (IAS)**: a unique transdisciplinary approach to support research and innovation in the Centre-Val de Loire region and a multidisciplinary intellectual and human space favouring international scientific exchanges.*

Established in 1996 by Prof. Paul Vigny and inspired by the historical, geographical and human cultures of the Loire Valley, LE STUDIUM Loire Valley Institute for Advanced Studies (IAS) covers all research fields in one global initiative aiming at boosting international and multidisciplinary scientific exchanges in the region and creating a dynamic scientific community that fosters knowledge, research and innovation.
Strengthening fundamental research, sharing knowledge, contributing to innovation developments and addressing global challenges are the many goals pursued by the institute. Having welcome hundreds of highly qualified scientists, the institute contributes to the strengthening of human capital for research, development and innovation and participates in the promotion of regional scientific research and economic influence.

LE STUDIUM 's programmes enable the institute to welcome the residencies of experienced international researchers across all scientific disciplines and support the development of international sustainable research collaborations. The selections and recruitments happen through calls for applications and call upon high standards applying to LE STUDIUM Scientific Council and human resources management. Thanks to the variety of existing programmes, the scientific research projects hosted by the institute cover a wide array of scientific topics.

The Smart Loire Valley Programme opens every year and offer various residency awards across all scientific disciplines since the creation of the institute. This first LE STUDIUM programme set the basis of excellence in which the institute endeavours to select and welcome international scientists. For the period 2015-2021, it operated with a co-financing from the European Union in the framework of the Marie Skłodowska-Curie Actions (COFUND) for the mobility of experienced researchers.
Starting in 2022, LE STUDIUM is a partner of the French Institutes for Advanced Study (FIAS) Programme - financed by the Marie Skłodowska-Curie Actions (COFUND) – alongside with six other French institutes for advanced studies in the field of humanities and social sciences. In that field, LE STUDIUM Loire Valley IAS also collaborates with The Loire Valley House of Human Sciences with a Visiting Researchers Programme.
For the past fifteen years, LE STUDIUM Loire Valley IAS is also a key partner of the regional council for its Ambition, Research and Development programmes initiative to support the smart specialisation strategy (S3) efforts and structure the regional research in defined scientific fields: cosmetics, biopharmaceuticals, environmental metrology and digital twins, forestry, materials in extreme conditions, natural and cultural heritage… Fellowships, conferences, missions abroad and visits of delegations, workshops, and small groups meetings lead to the development of ambitious collaborations and projects.
Since 2021, LE STUDIUM is an associated partner of the ATHENA European University Consortium through a partnership with the University of Orleans: a Visiting Researchers Programme open to the nine European universities members has fostered exchanges and creation of new curricula and events formats.
The institute develops in parallel a rich scientific events programme including international conferences, workshops, transdisciplinary seminars, webinars, summer schools and lectures for the promotion of the scientific culture and knowledge.
At the interconnection between fundamental research and innovation, LE STUDIUM works in close collaboration with all regional research partners, stakeholders and intermediaries:

- University of Orleans, University of Tours, INSA Centre-Val de Loire, ESAD Orleans, AgroParisTech Orléans,
- BRGM, CNRS Centre Limousin Poitou-Charente, CEA Le Ripault, Centre INRAE Val de Loire, Inserm
- Cosmetic Valley, Polymeris, Dream, S2E2, Polepharma, Vegepolys
- Maison des Sciences de l'Homme Val de Loire, Da Vinci Labs
- Hospitals of Tours and Orléans
- Euclide, Dev'Up, Centre-Sciences, CCI, etc...

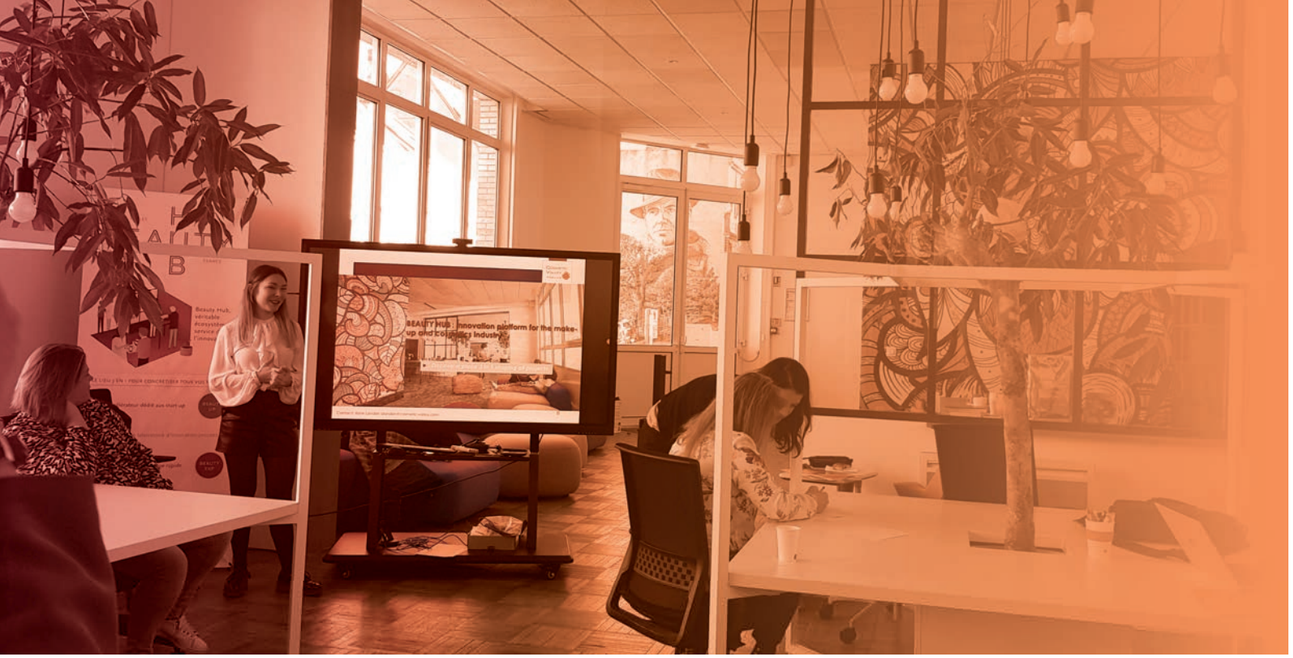
LE STUDIUM Loire Valley Institute for Advanced Studies' awards are selected thanks to the support and expertise of the LE STUDIUM Scientific Council. The latter is composed of twenty-five renowned scientists who regularly dedicate some of their precious time to evaluate research projects and candidacies in total independency.

SCIENTIFIC VISION & SURROUNDINGS

From fundamental research to innovation and socio economic development.

LE STUDIUM Loire Valley Institute for Advanced Studies is strongly imbedded in the Centre-Val de Loire region's research landscape. With 27 years of experience and holding a prestigious portfolio of regional and international research programmes, activities contribute to spreading light on its regional actors, partners and visitors. The focus of its mission remains to build the human capacity for research and scientific knowledge and to foster socioeconomic development and innovation. LE STUDIUM's expertise lies in attracting and managing a growing flow of global research exchanges, boosting international scientific exchanges, creating new scientific value chains, and contributing to the emergence of innovative, collaborative research and enterprise activities. The impact of new knowledge on the economy is incremental, but the cumulative effect is substantial.
Based in the city center of Orleans at the Hotel Dupanloup, the International University Centre for Research, LE STUDIUM Loire Valley IAS maintains deep interactions with all regional research partners and stakeholders, offering its high-quality services and attractiveness to welcome talents in the Centre-Val de Loire region. It enjoys prestigious premises and exceptional facilities to welcome international visiting researchers and regional researchers.
LE STUDIUM Loire Valley IAS offers international invited research fellows and visitors an intellectual and human space favouring interdisciplinary exchanges and debates, offering science a human dimension and creating a path for inspired research. It is guided by the three necessary conditions required for a creative activity, namely Curiosity, Imagination and Intuition. Having the opportunity to spend some time in the institute remains a memorable experience.

After the selection process and during the whole residency period, a dedicated contact person brings support and assistance to each researcher to guaranty a smooth and efficient installation and integration in the region from visa preparation, fully furnished housing arrangements, clearing of all administrative and technical burdens for banking, schooling, insurance...
LE STUDIUM Loire Valley IAS develops in parallel a rich scientific events programme including international conferences, workshops, transdisciplinary seminars, webinars, summer schools and lectures for the promotion of the scientific culture and knowledge. All Research Fellows benefit of the permanent invitation to all events organised by the institute.
The monthly transdisciplinary seminars, LE STUDIUM Thursdays, praised by all participants have become over time a not-to-miss intellectual space for exchanges. Research Fellows are all invited to present their research to a multidisciplinary and international audience to start a discussion. This enables them to advance their presentation skills, to gain a deeper understanding of all regional research activities, to experiment concrete transdisciplinary



exchanges and to enhance visibility of their host laboratory and their laboratory of origin. Beyond the inspiring scientific presentations and discoveries of new disciplines, methods, analyses, the monthly seminar is certainly an important social time of the institute that enable Research Fellows to grow their network and develop international friendships. Events organised in 2023 have again demonstrated the diversity of research projects represented in the faculty of fellows and the creative interactions that emerged in all discussions.
LE STUDIUM Awards of selected candidates include the opportunity to have the institute partially finance and bring the necessary communication and logistics support for the organisation of an international Conference or Workshop. Each research fellow has the opportunity to apply to this support at the beginning of her/his visit. These events organised in partnership with regional host research institutes and laboratories attract a large number of leading international researchers to the Centre-Val de Loire region each year. Their medium-size format and peculiarity offer the ideal scenery for the creation of close and fruitful discussions, which often result in new ideas for research and international collaborations. The digital format of certain events creates as well a new dynamic, as they enable a larger attendance with worldwide connections at lower environmental and financial costs. The online storage and accessibility of presentations beyond the conference time contributes even more to the public's awareness of research and facilitates the transfer of scientific knowledge to a wider audience.

In the framework of its participation to the Ambition, Research and Development programmes, LE STUDIUM Loire Valley IAS has developed a concrete expertise of liaising with international research ecosystems of interest for regional research laboratories and research institutes. The 2023 activities have led to the creation of firm partnerships engaged into proposed or funded international programmes. International collaborations are under further developments for the organisation of joined international conferences.

LE STUDIUM Loire Valley IAS remains an international, outward looking partner offering opportunities to access and develop fundamental research projects across all scientific fields. These opportunities are essential to lead to new knowledge and create the foundations from which the practical application of knowledge must be drawn. Together with its members and research partners, LE STUDIUM's mission nurtures this process closely linked to innovation.

LE STUDIUM AWARDS

Across its different programmes, LE STUDIUM offers different types of awards and actions that stimulate and facilitate international scientific collaborations and interdisciplinary exchanges in the Centre-Val de Loire.

Independent external peer reviewers and international independent Scientific Council members assess and select the best candidates and innovative research projects. To be eligible, applicant researchers must be nationals or long-term residents of a country other than France and comply with the European mobility rules.

LE STUDIUM RESEARCH
FELLOWSHIP OR INTEGRATION FELLOWSHIP

This award enables experienced international researchers to work in a host laboratory for ten to twelve consecutive months. The award targets internationally competitive researchers and offer them the opportunity to discover and work in nationally accredited laboratories with international renown. Benefits include a remuneration, travel support, a fully furnished housing, logistic and administrative support, specific training opportunities, and funding to organise one international event. Integration Fellowhips awards of 12 months target researchers in a process of application to a permanent position to one of the regional research centres.

LE STUDIUM RESEARCH
PROFESSORSHIP

This award enables an experienced international Professor to work in a host laboratory, to participate in research, research team building, postgraduate teaching and mentoring. The Professorship residency consists in four periods of three months in the Centre-Val de Loire region (twelve months in total in four consecutive years). Benefits include travel support, a fully furnished housing, logistic and administrative support, specific skills acquisition, and funding to organise one international event.

LE STUDIUM
VISITING RESEARCHER

This award enables experienced international researchers wanting to visit and work with a regional with personal resources, to experience a residency from three to twelve months. Benefits include travel support, a fully furnished housing, logistic and administrative support, specific training opportunities, funding to organise an international event and integration in the region for a three to twelve-month residency.

LE STUDIUM
VISITING ARTIST

This award enables renowned international artists looking to engage into an interdisciplinary work with one arts research laboratory and one or more research institutes or laboratories in the Centre- Val de Loire region to enter the LE STUDIUM scientific community. The award offers a residency from three to twelve month including as benefits, travel support, stipends, a fully furnished housing, full logistic and administrative support, specific training opportunities, funding to organise an international event.

LE STUDIUM RESEARCH
CONSORTIUM

This award enables the creation of a team of five researchers (under the leadership of one researcher or research team from the Centre-Val de Loire region) and funds its regular gatherings for a full week twice a year over two years (four meetings in total over two years). The consortium projects have well-defined research objectives, a work-plan to implement and milestone goals to achieve between meetings. They can serve different objectives and consist in a solid basis to build a sustainable collaboration among a small group of international partners.

PROGRAMMES' CALLS FOR APPLICATIONS

Smart Loire Valley Programme*

The Smart Loire Valley Programme call for applications is open from November each year to February the next year. It aims to foster international scientific exchanges and collaborations and to build human capacity and scientific knowledge for research, development and innovation. It is open to all scientific disciplines and is a precious tool to access funding to develop fundamental research projects and to create or extend international collaborations. The programme offers different formats of awards (residency, visit, networking) of 3 to 12 months.

For the period 2015 to 2021, the programme operated with a co-financing from the European Union in the framework of the Marie Skłodowska-Curie Actions - COFUND (Co- Funding of regional, national and international programmes for the mobility of experienced researchers) for the Fellowships award.

Since 2022, the programme is funded by regional partners and authorities and continues to offer attractive awards. More than 100 months of residencies are financed through this programme.

* The SMART LOIRE VALLEY Fellowships Programme received European Union H2020 funding (Marie Sklowdovska Curie Actions, COFUND contract #665790) for Fellowships awards between 2016 and 2021.

The French Institutes Advanced Study (FIAS) Programme*

FIAS is an international mobility programme proposing high-level scientific residencies in the seven IAS of Aix-Marseille, Loire Valley (Orléans-Tours), Lyon, Montpellier, Nantes, Paris and Rennes. Initiated in 2020 and partially financed by the Marie Skłodowska-Curie Actions - COFUND (Co- Funding of regional, national and international programmes for the mobility of experienced researchers) the FIAS Fellowship programme will run until the end of the 2024-2025 academic year.

The FIAS fellowship programme supports high-quality and innovative research as fellows conduct their research with the greatest freedom and benefit from the strong scientific and extra-academic support by the institutes.

The call is open to all disciplines in the SSH and all research fields. Research projects from other sciences that features a transversal dialogue with SSH are also eligible. It offers 10-month fellowships. In this context, the LE STUDIUM Loire Valley IAS welcome projects at the interface between SSH and other sciences enthusiastically.

*The FIAS programme receives funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 945408

LE STUDIUM MSH-Val de Loire Visiting Researchers Programme

Starting in 2023, LE STUDIUM offers a new VISITING RESEARCHERS Programme in partnership with the Maison des Sciences de l'Homme Val de Loire. Research projects should focus on the main axes developed by the MSH-Val de Loire:

- Cities and urban studies;
- Money, economy and finance;
- Environmental Humanities;
- Transmission(s), transfer(s), re-appropriation(s);
- Human interaction and Data Science;
- Health in all its forms.

This programme aims to attract experienced international researchers willing to conduct a high quality and innovative project in collaboration with the MSH Val de Loire. It offers residency periods of 3 to 10 months.

The ATHENA European University Visiting Researchers Programme

ATHENA Alliance gathering in Olréans, November 2022

Advanced Technology Higher Education Network Alliance – the ATHENA European University is a federation of mid-size higher education institutions in nine European countries (Portugal, France, Germany, Greece, Italy, Lithuania, Poland, Slovenia and Spain). It draws on their combined strengths to reach a common objective: deliver high-quality education with a positive impact on research, youth employability and social advancement at the national and European levels.

Joint research and educational projects enhance synergies between the member universities and stakeholders, foster research quality and impact fully leverage the infrastructure of the network and scientific potential. The introduction of joint multidisciplinary modules and curricula, supported by blended and actual mobility schemes and workshops organisation, aim to break down any possible scientific and cultural barriers to mobility.

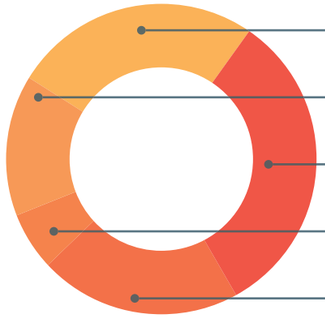
Starting in 2022, LE STUDIUM offers a Visiting Researcher Programme associated to the ATHENA alliance's partners including the organisation of international workshops and summer schools.

Calls for applications are open to all research themes for researchers, working in a university of the ATHENA consortium and wishing to join a research laboratory at the University of Orléans. While applications with a link to ATHENA's thematic focus (digital transformation) are particularly encouraged, all projects receive equal consideration according to their scientific merit.

ORIGIN OF LE STUDIUM RESEARCH FELLOWS

309 RESEARCHERS FROM
64 COUNTRIES

THEMATICS
REPARTITION SINCE 1996



HUMAN AND SOCIAL SCIENCES	**23%**
EARTH, ECOLOGY AND ENVIRONMENTAL SCIENCES	**16%**
LIFE AND HEALTH SCIENCES	**38%**
COMPUTER SCIENCE, MATHEMATICS AND MATHEMATICAL PHYSICS	**7%**
MATERIALS AND ENERGY SCIENCES	**16%**

HIGHLIGHTS

Events and networking actions organised by LE STUDIUM aim at creating synergies between academic disciplines and links with the industrial world in order to increase interdisciplinary research and translational research to stimulate socioeconomic development. They contribute to the promotion of the research work carried out in the Centre-Val de Loire region in partnership with international scientists and to the extension of their networks.

1 SOIL MAPPING FOR A SUSTAINABLE FUTURE

The conference organised in February 2023 in Orléans brought together approximately 150 representatives from 30 countries. World-renowned scientists bringing together the main institutions responsible for soil mapping at local, national, continental and global scales moderated all sessions. The main objectives were to take stock of the progress of the projects, promote the products and their use, discuss the technical and scientific aspects, and encourage new partners to join. In the context of major planetary issues (climate change, food security, water supply, protection of biodiversity, maintenance of soil resources, human health, etc.) or more local (protection of surface and groundwater, sustainable land development, urbanization and zero land-take objective, etc.) the event raised a large interest. It guaranteed the presence of a large and various audience gathering soil science specialists and various user communities and many entities interested in using these digital soil data tools.

2

Conservation, Ecology and Systematics of Lepidoptera in a changing world
The 23rd European Congress of Lepidopterology & 11th Forum Herbulot

3 GREEN TECHNOLOGY

The Cosmetosciences ARD CVL Programme supports the collaboration between the ICOA Research institute and the University of São Paulo to achieve the sustainable development goals (SDGs) and develop products healthy for people and animals and safe to the environment. The project sets up high-pressure processes that employ green and sustainable solvents that generate products free of toxic solvent residues.

Prof. Alessandra Lopes de Oliveira (University of São Paulo), LE STUDIUM Research Fellow / ARD CVL COSMETOSCIENCES Programme

1 MATERIALS & ENERGY SCIENCES

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Dr Alberto José Fernández-Carrión

Period: September 2022 - March 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Solid State Chemistry / Materials Science
Previously: Guilin University of Technology - CN
Research institute: Extreme Conditions and Materials: High Temperature and Irradiation (CEMHTI) / CNRS - Orléans
Host scientist: Dr Michael J. Pitcher

BIOGRAPHY

Alberto J. Fernández-Carrión earned his Ph.D. in Materials Science, with an International Mention, from the University of Seville, Spain, in 2014. He has focused on the solid-state chemistry of ceramic materials. His research interests include the development of innovative oxide-based ceramic materials through innovative chemical routes and the investigation of crystal structure arrangements responsible for fast ion conduction in solid-state energy generation/storage systems, as well as the development of luminescent materials for solid-state lighting technologies. His international research experience spans ten years, including stints at CNRS-CEMHTI in France, or Guilin University of Technology, in China. In September 2023, he returned to the University of Seville through the competitive EMERGIA research talent recruitment program.

RESEARCH QUESTION

Glass Ceramization Processing for Developing Solid-State Transparent Sodium Ion Electrolytes

Advanced ceramics encompass a variety of materials that exhibit superior properties compared to traditional ceramics such as porcelain, brick, and tiles. These materials are engineered for high-performance applications due to their exceptional physical and chemical properties. A recent advancement in the field involves ceramics that exhibit remarkable transparency within the visible range of the electromagnetic spectrum. These materials enable, for example, direct visualization inside devices or volumetric absorption/emission of light. Typically, they also feature thin grain boundaries, which may be applied for reducing the ion migration resistance typically observed in the thick grain boundaries of non-transparent solid-state electrolytes. The proposed project aims to develop a novel multifunctional material that combines high sodium ion conductivity (>10-3 S/cm at room temperature) with optical transparency.

Prof. Yun Hee Jang

Period: September, 2022 - January, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Molecular modelling
Previously: Daegu Gyeongbuk Institute of Science and Technology (DGIST) - KOR
Research institute: Research Group for Materials, Microelectronics, Acoustics and Nanotechnologies (GREMAN) / CNRS, INSA CVL, University of Tours - Tours
Host scientist: Prof. Yves Lansac

BIOGRAPHY

Yun Hee JANG received her B.S. (1990), M.S. (1992), and Ph.D. (1995) in Physical Chemistry from Seoul National University, Seoul, Korea. After working at Caltech (Pasadena, USA) as Postdoctoral Scholar (1997-2005) and at GIST (Gwangju, Korea) as Assistant/Associate Professor of Materials Science & Engineering (2006-2016), she is now working at DGIST (Daegu, Korea) as Professor of Energy Science & Engineering. Her research group, Curious Minds' Molecular Modeling (CMMM) Laboratory, employs a multiscale computational approach, which combines small-scale quantum-mechanical density functional theory calculations with large-scale molecular dynamics and Monte Carlo simulations, for molecular-level understanding of structures, reactions, and dynamics of various functional materials at interfaces.

RESEARCH QUESTION

Molecular modeling of stretchable electronics

A theoretical prediction of favorable ion exchange between PEDOT:PSS and hard-cation-soft-anion ionic liquids (IL) is confirmed experimentally and computationally by treating PEDOT:PSS with a new IL composed of an extremely hard protic cation MIM+ and an extremely soft anion TCB–. This protic IL significantly improves both conductivity and stretchability of PEDOT:PSS, outperforming its aprotic counterpart, EMIM :TCB, which has been the best IL employed for this purpose so far. This electrical and mechanical enhancement is speculated as a result of the aromatic and protic cation MIM+ which does not only provide efficient ion exchange with PEDOT:PSS but also serves as a molecular glue holding together multiple PEDOT domains by strong ionic as well as hydrogen bonds, because washing MIM+ out of the film degrades the stretchability while keeping the morphology. Our results offer molecular-level insights on the morphological, electrical, and mechanical properties of PEDOT:PSS and a molecular-interaction-based enhancement strategy for intrinsically stretchable conductive polymers.

Dr Michal Korenko

Period: September, 2022 - August, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Molten Salt Chemistry / Electrochemistry
Previously: Institute of Inorganic Chemistry, Slovak Academy of Sciences, Bratislava - SK
Research institute: Extreme Conditions and Materials: High Temperature and Irradiation (CEMHTI) / CNRS - Orléans
Host scientist: Dr Mathieu Allix

BIOGRAPHY

Michal Korenko obtained his Ph.D. in high-temperature molten salt chemistry and electrochemistry in 2003 at the Slovak University of Technology in Bratislava. Currently, he is working as a senior research fellow at the Institute of Inorganic Chemistry, Slovak Academy of Sciences. His scientific career has focused on projects in the field of molten salt chemistry, high-temperature electrometallurgy, and high-temperature energy applications. He was involved in several academic projects (EU, US, Slovak, Czech), including specific projects for industrial partners (ALCOA, HYDRO, RIO TINTO, ELYSIS). In 2009 – 2011, he spent two years as a postdoc at the Nuclear Research Institute in Řež near Prague working on pyrochemical electrochemical separation of lanthanides and actinides in molten fluorides. In 2017, he assumed his position in Slovakia after 3 years as a visiting scholar at the Valparaiso University, USA, participating in the US Department of Energy project of solar thermal electrolysis of MgO from molten fluorides.

RESEARCH QUESTION

Molten Salt Synthesis and Characterization of (Oxo)-(Fluoro)-Aluminates for Electrochemical and Electronic/Photonic Applications

The primary aim of the project was a thorough physicochemical analysis and structural characterization of key phases and compounds of high-temperature fluoride melt/solid (glass) interphases. The gained knowledge base was used for a targeted synthesis and preparation of previously unknown compounds and materials based on oxo-fluoro-aluminates of alkali metals with interesting functional properties for electronic and photonic applications. A key innovation in this project was a new, synergistic, and strategic approach to synthesizing metastable/non-stoichiometric phases and materials to discover new functional complex compounds, phases, and materials for electrochemical, electronic, and photonic applications. The practical intention behind the project is based on long-term cooperation between the home (IIC SAS, Bratislava) and host (CEMHTI, CNRS) institutes. Up to now, our collaboration has been mostly oriented to the study of the structure of oxo-fluoride melts for aluminium production. We would like now to intensify the cooperation with Dr. Mathieu Allix to focus more on the high-function materials based on the synthesis from these molten oxo-fluoride melts for electronic and photonic applications.

LE STUDIUM RESEARCH CONSORTIUM

AMMONIA FOR VALUABLE CLEAN ENERGY SYSTEMS

Prof. Christine Rousselle

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Full Professor at the University of Orléans, Fellow of Combustion Institute 2021, her research fields concern Fundamental Combustion to clean thermal applications (mainly internal combustion engines), by means of optical diagnostics and high pressure-high temperature vessels, with some focus on zero/low carbon fuels. Since 7 years, she leads different projects concerning Ammonia, a carbon-free fuel, at University of Orléans, at PRISME Laboratory, and she has recently obtained an ANR project, named Scientific Improvement on Ammonia Combustion (SIAC).
Invited regularly in national and international conferences (more than 30) to deliver plenary lectures about ammonia combustion and/or ammonia as fuel for engines. She was also TEDX speaker 2021: 'L'énergie en 2050 : avec ou sans combustion ? | Christine ROUSSELLE | TEDxOrléan, 2021', https://youtu.be/6D8elPvVE_o.
She welcomed the 2nd Edition of the Symposium on Ammonia Energy 2023, in Orléans, with also the support of the Studium.

RESEARCH QUESTION

Linked to the European Union objective to reach zero carbon emissions in 2050, hydrogen became a good candidate to reach this deal. But, due to the complexity and costs of its storage and safety issues, ammonia, the 'nitrogenated hydrogen', is more and more considered as the best hydrogen carrier. A viable energy system based on green NH^3 combustion with zero carbon footprint faces several main scientific and technological challenges. Ammonia has been considered as fuel during the 60s, with no gain in interest. 10 years ago, Japan started different programs on this topic and believed on the potential of ammonia fuel. As ammonia has fundamental characteristics of combustion far from usual fuels but also far from hydrogen itself, the scientific questions remain how to optimize the combustion of pure ammonia without undesirable pollutants emissions (as unburnt ammonia itself and nitrogenated species) and how to optimize the prediction of ammonia combustion to design accurate systems for power, transports, and industries? For that, fundamental studies as for example, kinetics combustion, turbulent-flame interaction in canonic set-ups still need to be done with, in parallel, experiments in applications as gas turbines, engines and burners. The combination of both will allow to develop accurate models, especially dedicated to ammonia fuel with or without mixing with other molecules (at hydrogen itself).

Partners

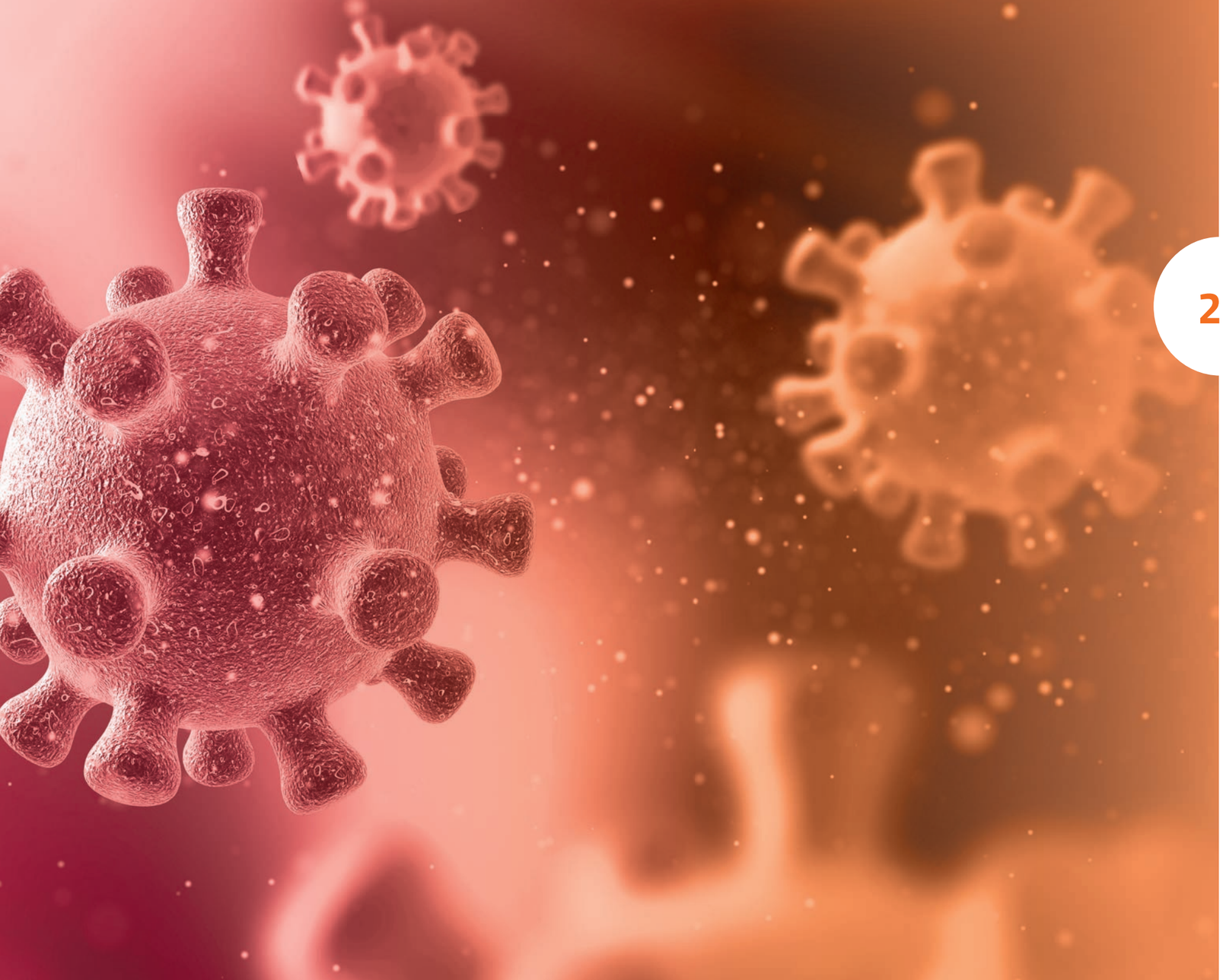
Dr Mara Di Joannon
is a pioneer of MILD combustor, efficient burner
> Engine Institute, CNR - Naples, Italy

Dr Pino Sabia
is an expert in experiments for understanding of ammonia combustion kinetics
> Engine Institute, CNR - Naples, Italy

Prof. Agustin Valera-Medina
is a pioneer in Europe on Gas turbine combustor fed with Ammonia
> Net Zero Innovation Institute, Cardiff University - United Kingdom

Prof. Fabian Mauss
is an expert in chemistry and I.C. engine modelling and dissemination of such models to industry as CEO of several SME. He developed one of the few most predictive kinetic mechanisms currently on ammonia oxidation
> Brandenburg University of Technology, Cottbus - Germany

Prof. Nondas Mastorakos
is an expert in CFD and experiments for stationary combustion systems and knowledge-transfer to the aviation industries
> Hopkinson Lab, Department of Engineering, University of Cambridge - United Kingdom



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Prof. Bilal Haider Abbasi

Period: May, 2023 - December, 2023
Programme: ARD CVL COSMETOSCIENCES PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Medicinal Plant Biotechnology
Previously: Quaid-i-Azam University - PK
Research institute: Biomolecule and Plant Biotechnology (BBV), University of Tours - Tours
Host scientist: Prof. Nathalie Guivarc'h

BIOGRAPHY

Bilal Haider Abbasi obtained his PhD in Biochemical Engineering from the Graduate University of Chinese Academy of Sciences (GUCAS), China. He is a tenured Professor at Quaid-i-Azam University, Pakistan and has been allied with Université de Tours, France as a research fellow since 2018. He achieved several milestones including being listed in the Top 2% of Stanford Scientists since 2020, receiving Gold Medal for Biotechnology from Pakistan Academy of Sciences in 2016, Best Young Researcher Gold Medal and a Performance-Based Award from university. He heads the «Plant Cell Culture Lab», focusing on optimizing and assessing the medicinal efficacies of plant cell cultures. He is also a Member of the Asian Federation of Biotechnology and the Pakistan Biological Safety Association.

RESEARCH QUESTION

Establishment of Callus Cultures of Echinacea purpurea and investigating the Impact of Melatonin on its Secondary Metabolism and Cosmeceutical Properties

The project explores medicinal potential of Echinacea purpurea. Its diverse benefits including antioxidant, anti-diabetic, and anti-aging responses, make it promising for cosmeceutical applications. Wild grown plants offer limited secondary metabolites due to seasonal constraints. To address this challenge, the study focuses on establishing sustainable in vitro callus cultures of purple cornflowers using several plant growth regulators. Moreover, exogenous melatonin will serve as a catalyst for augmenting secondary metabolite production in E. Purpurea callus cultures. The study aims to optimize metabolite production relevant to cosmeceuticals. Assays including collagenase, elastase, hyaluronidase, and Anti-AGE formation are employed to assess the potential of the elicited E. purpurea callus extracts in inhibiting enzymes associated with skin aging, degradation of extracellular matrix components, and formation of AGE. These findings pave the way for using E. purpurea-derived compounds in cosmeceuticals addressing skin aging, inflammation, and dermatological concerns.

Dr Mohammed Akli Ayoub

Period: June, 2023 - August, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Biology & Life Sciences
Previously: Khalifa University - UAE
Research institute: Physiology of Reproduction and Behaviour (PRC) Centre INRAE Val de Loire, CNRS, University of Tours, IFCE - Tours
Host scientist: Dr Frédéric Jean-Alphonse

BIOGRAPHY

I obtained my PhD of Biochemistry and Molecular Biology in 2003 from the University of Paris XI (France). My main research focus is on the molecular pharmacology and signaling of cell surface hormone receptors including GPCRs and RTKs, and their implication in physiology and pathophysiology. This is mainly based on the application of BRET technology to study various aspects of GPCRs and RTKs in intact cells. I published more than 70 articles receiving around 5000 citations with a strong international research experience in France, Australia, Saudi Arabia, and the United Arab Emirates. During my career, I worked with many world-known GPCR experts including Dr. Ralf Jockers, Dr. Jean-Philippe Pin, Prof. Kevin Pfleger, Prof. Michel Bouvier, and Dr. Eric Reiter.

RESEARCH QUESTION

Investigating The Effects Of Steroid Hormones On G Protein-Coupled Receptors In Vitro

Steroid hormones (SH) are classically known to mediate delayed genomic effects through their intracellular/nuclear receptors. However, strong evidences have been accumulated in a favor of rapid non-genomic signaling of SH acting on specific cell surface receptors, including G protein-coupled receptors (GPCRs). In this project, we initially hypothesized that the gonadotropin receptors, FSHR and LHR, that play a pivotal role in human and animal reproduction, may constitute the interesting targets of SH. During my first visiting researcher award (Summer 2023), we could bring the proof-of-concept supporting the allosteric action of SH on FSHR/LHR in HEK293 cells. More interestingly, we observed that SH can also positively modulate the pharmacology of other GPCRs other than FSHR/LHR. This suggests a more general feature of SH targeting GPCRs with possible implication in physiology. Therefore, we also propose to extend our analysis to many GPCRs known as key receptors in the major physiological systems (endocrine, cardiovascular, renal, immune, and nerve system). Our study sheds more light on the physiological interactions between the gonadotropins and SH during the control of reproduction and its link with other physiological systems through the targeting of other GPCRs by SH.

Prof. Francis Bambico

Period: December, 2023 - December, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Neuroscience
Previously: Memorial University of Newfoundland, St. John's, NL - CA
Research institute: Imaging, Brain and Neuropsychiatry (iBraiN), University of Tours, Inserm - Tours
Host scientist: Prof. Catherine Belzung

BIOGRAPHY

Francis Bambico is an associate professor in behavioural neuroscience at Memorial University of Newfoundland, where he leads a multi-funded translational neuropsychopharmacology lab in the psychology department. He is also affiliated with the Centre for Addiction and Mental Health headquartered in Toronto. He obtained graduate training at the Max Planck Institute, University of Túbingen, eventually completing his doctorate at McGill University, and holding postdoctoral fellowships at Yale University and at CAMH/University of Toronto. His research is focused on the neurobiology of psycho-affective and mood disorders. He is lead investigator in drug discovery and optimization programs, as well as, in innovation initiatives testing neuromodulation strategies using preclinical models.

RESEARCH QUESTION

Non-Invasive Therapeutic Neuromodulation Strategies for Psycho-Affective Disorders

Treatment of psychiatric conditions poses an enormous challenge, particularly exigent among high-vulnerability groups as children. Despite the availability of several medications, the unabatingly increasing prevalence of these illnesses has been met by poor treatmeant outcomes. Among depressed individuals, over half do not respond to any treatment. Even more drastic interventions, e.g., deep brain stimulations conventionally opted for refractory patients have not yielded optimal solutions. Steering efforts towards non-invasive strategies as transcranial current stimulation faces a number of technical obstacles, e.g., poor spatio-temporal targeting, indiscriminate cell-type activation and mutual anihilation of chaotic signals within pathways. The goal is to address these by developing a strategy of non-invasively activating specific cell-types by pharmacologically priming them towards excitability using compounds that act on 1 of 3 isoforms of the SK-type channel known to variably show across neuron types. This is done in order for them to be selectively responsive to a secondary transcranial current input. Our aim is two-fold: to test technical feasibility and efficacy in rodent models.

Prof. Livio Casarini

Period: November, 2022 - November, 2023
Programme: ARD CVL BIOPHARMACEUTICALS PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Basic endocrinology
Previously: University of Modena and Reggio Emilia - IT
Research institute: Physiology of Reproduction and Behaviour (PRC) Centre INRAE Val de Loire, CNRS, University of Tours, IFCE - Tours
Host scientist: Dr Eric Reiter

BIOGRAPHY

Livio Casarini has got the Ph.D. in evolutionary biology, in the year 2009. His research is focused on sex hormone signalling and receptors, steroidogenesis, ovarian and thyroid cancer, as well as on related pharmacological aspects. Livio is associate professor at the University of Modena and Reggio Emilia and team leader of the research Group in basic and translational endocrinology. Currently, his research activities fall within the field of gonadotropins signalling in the gonads, sex steroid hormones and thyroid pathophysyology. One of the core projects aims to develop a nano antibody-based, non-hormonal contraceptive method.

RESEARCH QUESTION

Research Fellowship in Antibody fragments targeting ovarian GPCRs to control reproduction

Clinical approaches to improve couples fertility or contraception are based on hormonal treatments that may have side effects and imply daily administration of drugs. Recently, the use of antibodies as therapeutics is increasing, but they are not currently applied in the field of reproduction. In silico methods for antibodies and nano-antibodies (nanobodies) selection and maturation may be exploited for the development, validation and application to different therapeutic targets. In particular, nanobodies are small, poorly immunogenic biopharmaceuticals that may be developed to target sex hormones and their receptors, offering the potential to modulate male and female reproduction and behavioural issues.

Dr David Crottès

Period: March, 2022 - March, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Biology - Cancer
Previously: University of California San Francisco (UCSF) - USA
Research institute: Niche, Nutrition, Cancer & Oxidative metabolism (N2COX) / INSERM, University of Tours - Tours
Host scientist: Prof. Christophe Vandier

BIOGRAPHY

David Crottès has a long standing interest in the patho/physiological molecular function of ion channels with a special interest cancer and immunity. For his PhD training, David joined Dr. Soriani's team at Institut Biologie Valrose (Nice, France) and investigated the role of a chaperone protein, Sigma-1 receptor, in the regulation of ion channels during carcinogenesis. In 2014, he joined Prof. Lily Jan lab at University of California San Francisco, a worldwide leader in ion channels research and developed his own research project on the contribution of chloride channels in oncogenic signaling pathways in pancreatic cancer cells.
Since 2022 he investigates the intra-tumoral heterogeneity using single cell calcium imaging.

RESEARCH QUESTION

Heterogeneity of the crosstalk between cancer cells and the tumor micro-environment

This is crucial to prevent tumor development and chemotherapy resistance. However, those interactions are highly heterogeneous and depend on the cancer type, or the cellular and molecular composition of the microenvironment. Thus, being able to document and investigate the heterogeneity of those interactions represent an important challenge to propose original therapeutic strategies. Our project aim to investigate the interaction of cancer cells with the micro-environment by using single cell calcium imaging. Calcium is an essential second messenger. In cancer cells, variations of intracellular calcium concentration has been frequently dis-regulated and could reflect their phenotype. Here, in a panel of cancer cell lines representative of different cancers we will define the profile of cytosolic calcium response and the cancer phenotype induced by a panel of molecules representative of the tumor microenvironment. Then, using machine learning methods we will build a classification of cancer cell lines according to their sensitivity to elements of the tumor microenvironment and generate a model to predict the cancer phenotype of a cancer cell line from its calcium profile.

Prof. Stephen Foster

Period: September, 2022 - September, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Insect physiology/chemical ecology
Previously: North Dakota State University - USA
Research institute: Insect Biology Research Institute (IRBI), University of Tours / CNRS - Tours
Host scientist: Prof. Jérôme Casas

BIOGRAPHY

Stephen Foster was awarded a PhD in chemistry at the University of Waikato (New Zealand). Afterwards, he obtained a position at the Entomology Division of DSIR in Auckland (New Zealand) where he worked on insect chemical ecology until accepting a position in the Department of Entomology at North Dakota State University (USA) in 2000. He is a professor in entomology (School of Natural Resource Sciences) at NDSU, where he teaches Insect Physiology and works primarily on the metabolic nature of insect chemical communication. In recent years his research has focused on the use of stable isotope tracers to study quantitative metabolism in insects. He has been an Associate Editor for the Journal of Chemical Ecology since 2006 and is a past President and Secretary of the International Society of Chemical Ecology.

RESEARCH QUESTION

Stable isotope methods for insect physiology

The original aim of this project was to use stable isotope techniques for studying specific insect reproductive physiologies in vivo, particularly in regard to carbohydrate and fat allocation in reproduction. We used this approach in two systems: fat production in host-feeding parasitoids , and allocation of carbohydrate to sex pheromone production in moths. During the visit, we also proposed a review on "How Insect exocrine Glands Work" to Annual Review of Entomology (highest ranking journal in entomology). The proposal was accepted, and the manuscript was written during the stay in Tours. The review will appear in volume 70 of the journal, to be published in January 2025.

Prof. Jill Heathcock

Period: May, 2023 - July, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Professorship
Speciality: Neurodevelopmental Disabilities
Previously: The Ohio State University - USA
Research institute: Imaging, Brain and Neuropsychiatry (iBraiN), University of Tours, Inserm - Tours
Host scientists: Prof. Frédérique Bonnet-Brilhault & Prof. Delphine Mitanchez

BIOGRAPHY

Jill Heathcock is a pediatric physical therapist with a PhD in Biomechanics and Movement Science. She is a Professor at The Ohio State University and director of the Pediatric Assessment and Rehabilitation Laboratory (PEARL Lab). Dr. Heathcock's work focuses on assessment and rehabilitation for infants and children with neurodevelopmental disabilities.

RESEARCH QUESTION

Adding movement analysis to detect neurodevelopmental impairments in infants of obese mothers

Assessment of behavioral skills is central to identifying children with neurodevelopment disabilities. With advances in digital monitoring, patient- and parent-collected health care information, and non-invasive video-audio analysis, multidimensional assessments (e.g. motor, voice, parent-reported outcome measures) has the potential to improve detection of neurodevelopmental disabilities. The aim of this study was to test the feasibility and acceptability of collecting video-audio recordings of spontaneous motor and voice behaviors of infants for multidimensional assessment in inpatient and home environments. N=11 infants and their families were enrolled in a longitudinal study to test the feasibility of assessment via experimenter-collected recordings in inpatient settings and via remote parent-collected recordings at home. Questioners were used to assess acceptability of participation in a larger trial and to check for barriers and preferences. Assessment of spontaneous motor and voice behaviors in infants is feasible and shows moderate-high levels of acceptability which could generate a new metric for validation and diagnostic prediction in neurodevelopmental disabilities.

Prof. Yu Kimura

Period: November, 2023 - April, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: Biomaterials, Organic Chemistry
Previously: Kyoto University - JP
Research institute: Center for Molecular Biophysics (CBM) / CNRS - Orléans
Host scientist: Dr Eva Jakab Toth

BIOGRAPHY

Yu Kimura obtained his PhD in polymer chemistry from Kyoto University, Japan in 2009 on the development of tissue regeneration scaffolds with controlled release of bioactive molecules. After a postdoctoral experience in Tsukuba, Japan and program-specific employment in Kyoto University, he is currently an Associate Professor of Department of Energy and Hydrocarbon Chemistry, Graduate School of Engineering, Kyoto University. His specialty is biomaterial science, and the specific expertise at present is in contrast agent synthesis for magnetic resonance imaging (MRI), fluorescence imaging and photoacoustic imaging (PAI). His current research interests are the imaging of various tumors and oxygenation status of tissues and their treatment through theranostics.

RESEARCH QUESTION

Nanoparticle contrast agents: synthesis and characterization

This project aims to clarify the proton relaxation mechanism of novel nanoparticulate Gd contrast agents through Nuclear Magnetic Relaxation Dispersion (NMRD) study, an expertise that the host group possesses. Gadolinium (Gd) has seven unpaired electrons in the 4f orbital and has the effect of shortening the longitudinal relaxation time of protons' magnetization. Then, it is known as a highly "positive contrast agent" on magnetic resonance imaging (MRI). At present, chelate-type MRI contrast agents are widely used in clinics because of preventing the toxicity of Gd^{3+} ions. Through the collaboration, we can measure the effect of shortening the proton relaxation time for various gadolinium oxide nanoparticles with different particle sizes, by using the NMR relaxometer. The findings will enable us to develop novel, innovative, more efficient, and safer Gd-MRI contrast agents. The obtained results open the possibility to use these systems for in vivo MRI contrast imaging at the cellular or tissue level, thanks to the important sensitivity improvement and optimization of the nanoparticulate Gd-based contrast agents based on the results of this research.

Prof. Alessandra Lopes de Oliveira

Period: August, 2023 - December, 2023
Programme: ARD CVL COSMETOSCIENCES PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Food Engineering
Previously: University of São Paulo - BR
Research institute: Institute of Organic and Analytical Chemistry (ICOA) / CNRS, University of Orléans - Orléans
Host scientist: Prof. Caroline West

BIOGRAPHY

She obtained a degree in Food Engineering from the Universidade Estadual Paulista Júlio de Mesquita Filho/UNESP in 1994, followed by master's and doctoral degrees in Food Engineering from the State University of Campinas/UNICAMP in 1997 and 2002, respectively. Currently, she holds a full professorship at the Faculty of Animal Science and Food Engineering at the University of São Paulo and serves as the Program Coordinator for the Postgraduate Program in Food Engineering. Additionally, she supervises students in the postgraduate program in Food Engineering at the same institution and has been collaborating with the International Master Program: Analytical Chemistry for Drugs and Natural Products at the UFR des sciences Pharmaceutiques at the Université de Bordeaux since 2016. Her research focuses on Food Science and Technology, particularly in Food Engineering processes, with a special emphasis on systems utilizing supercritical carbon dioxide and pressurized liquid extraction. Her work mainly involves studying phase equilibrium, optimizing green processes for obtaining natural extracts from fruits and plants, as well as conducting research in chromatographic analysis, sensory analysis, and ice cream processing.

RESEARCH QUESTION

Identification of active compounds in insect oils and in vegetable oils from Brazilian endemic plants

Optimization of separation processes involving high pressure, such as supercritical fluid extraction and pressurized liquid extraction, is primarily applied to sources of bioactive compounds derived from plant, animal, and food processing residues. Integration or intensification of subsequent processes aims at fractionating bioactive compounds in a micro refinery system. Composition studies of extracts enriched in bioactive compounds are conducted to direct their applications in food, pharmaceuticals, and/or cosmetics. Investigation also extends to encapsulation, impregnation, and particle formation in supercritical media.

Dr Mahenina Jaovita Manase

Period: February, 2023 - July, 2023
Programme: ARD CVL COSMETOSCIENCES PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Phytochemistry
Previously: University of Antsiranana - MG
Research institute: Institute of Organic and Analytical Chemistry (ICOA) / CNRS, University of Orléans - Orléans
Host scientist: Prof. Émilie Destandau

BIOGRAPHY

Mahenina Jaovita Manase, PhD, earned his doctoral degree in Pharmacognosy from the University of Burgundy, France. Presently, he serves as an associate professor at the University of Antsiranana, located in Madagascar. Dr. Manase's research center predominantly on the analytical chemistry of natural products sourced from plants. He specializes in employing diverse biological assays to evaluate the efficacy and potential of these compounds. Driven by his passion for natural product research, he is actively engaged in spearheading an international initiative aimed at enhancing the significance of plants deeply ingrained in the traditional practices of the Malagasy people.

RESEARCH QUESTION

Phytochemical study of plants of cosmetic interest

Ravenala madagascariensis or Traveler's Tree (STRELITZIACEAE) and Litchi (SAPINDACEAE) are two species widely distributed in Madagascar. Particularly, on the one hand, the Litchi fruit is exploited by the local agri-food industry and offers valuable co-products. On the other hand, some part of Ravenala enters into the preparation of traditional remedies used by the Malagasy. In this research project focused on the valorisation of plants and co-products, our strategy is to characterize active compounds. Our study consists in developing analytical analysis methods and performing biological tests to identify the active compounds. The laboratory is at the cutting edge of technology and has internationally renowned expertise in natural substances for cosmetic uses. The objective is to identify biosourced ingredients in Malagasy traditionally used plants.

Dr Anton Nizovtsev

Period: October, 2023 - December, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: Computational chemistry
Previously: Nikolaev Institute of Inorganic Chemistry SB RAS - RU
Research institute: Center for Molecular Biophysics (CBM) / CNRS, Orléans - Orléans
Host scientist: Dr Svetlana Eliseeva

BIOGRAPHY

After obtaining his doctoral degree in physical chemistry in 2014, Dr Anton S. Nizovtsev had short research stays at US and UK universities, and then passed postdoctoral training in the group of Prof. Elena Besley at the University of Nottingham. Dr Nizovtsev is currently a senior researcher at the Nikolaev Institute of Inorganic Chemistry SB RAS. His research work is mainly focused on the study of electronic structure of chemical compounds, reaction mechanisms, and adsorption processes by using various computational chemistry techniques.

RESEARCH QUESTION

Computational study of f-element containing macrocyclic compounds

Despite the growing number of applications of lanthanides in various high-tech products and green technologies to health, many aspects of chemistry of f-elements are still underexplored that prevents the rational synthesis of novel materials containing f-metals and detailed interpretation of experimental data. As the search for a suitable material for industrial application is a long and complex process, the new strategies for materials design are required. In particular, first-principles calculations were shown to have the potential to greatly accelerate the design and optimization of new materials with desired properties for human welfare. The aim of the project is to study a series of lanthanide(III)-based metallacrown compounds that have a high potential in biological imaging applications. The results of performed first-principles calculations will allow us to predict structural, energetic, and spectroscopic properties of metallacrowns under investigation and to understand how their photophysical characteristics can be tuned by varying the bridging ligands. This study will expand the fundamental understanding of f-element chemistry and will be useful for the development of lanthanide(III)-based metallacrowns with improved photophysical properties in the near-infrared range.

Prof. Vincent Pecoraro

Period: May, 2023 - August, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Professorship
Speciality: Bioinorganic chemistry and inorganic chemistry
Previously: University of Michigan - USA
Research institute: Center for Molecular Biophysics (CBM) / CNRS - Orléans
Host scientist: Prof. Stéphane Petoud

BIOGRAPHY

Vincent L. Pecoraro is the John T. Groves Collegiate Professor of Chemistry at the University of Michigan, Ann Arbor. He received his BS in Biochemistry from UCLA (1977), a PhD in Chemistry from UC Berkeley (1981), was an NIH Postdoctoral Fellow at the University of Wisconsin, Madison (1981-4) and joined the University of Michigan in 1984. Prof Pecoraro contributes to the fields of Bioinorganic and Supramolecular Chemistries. He was an Assoc. Editor of *Inorganic Chemistry* for 20 years and President of the Society of Biological Inorganic Chemistry. He has published ~ 350 research articles and given 500 research lectures. He has received the Blaise Pascal International Research Chair, ACS/SCF Prix FrancoAmerican Lecturer Award and holds a Doctor Honoris Causa from Aix-Marseille University.

RESEARCH QUESTION

Lanthanide Based Metallacrowns as Near-Infrared Emitting Biological Probes

Professor Pecoraro, in his role as a Le Studium Professor, is collaborating with Prof. Stephane Petoud and Dr Svetlana Eliseeva at the Centre Biophysique Moleculaire in the development of novel metal based imaging agents for the inexpensive and versatile detection of cancer. The developed modalities focus on preparing compounds that can be used in applications ranging from labelling cells in culture to precision fluorescence guided surgery. Professor Pecoraro, the discover of a group of molecules known as metallacrowns, works with Prof. Petoud and Dr Eliseeva to characterise new near IR emitting, lanthanide containing metallacrowns for these purposes. Specifically, during the next 3 months period, they have been attempting to attach long wavelength antenna molecules to previously described, highly emissive complexes to expand the range of application of these molecules to in vivo analysis of laboratory animals and, eventually, humans.

Prof. Remo Russo

Period: October, 2023 - September, 2024
Programme: ARD CVL BIOPHARMACEUTICALS PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Immunity, Infection and Immunotherapy
Previously: Federal University of Minas Gerais - BR
Research institute: Immuno - Neuro Modulation (INEM) / CNRS, University of Orléans - Tours
Host scientist: Dr Valérie Quesniaux

BIOGRAPHY

Remo Russo, a biologist with an advanced PhD in immunology, has 17 years of experience in immunopharmacology, studying various aspects of lung diseases such as Th2 and fibrogenic diseases (chronic lung inflammation and tissue repair), pharmacological mechanisms and regulation. Since 2011 he is Associate Professor and Head of the Laboratory of Pulmonary Immunology and Mechanics at the Department of Physiology and Biophysics of the Institute of Biological Sciences at the Federal University of Minas Gerais/UFMG (Belo Horizonte - Brazil).

RESEARCH QUESTION

Autologous transplantation of myeloid cells reprogrammed ex-vivo by STING-Dependent Adjuvants (STAVs) as an alternative cell therapy for the treatment of Idiopathic Pulmonary Fibrosis

Fibrotic lung diseases, characterized by excessive collagen deposition in response to epithelial injury, such as pulmonary fibrosis, are chronic and debilitating conditions associated with decreased life expectancy. Although lung transplantation offers an alternative, various constraints, including a scarcity of suitable donors, high surgical risks, post-transplant rejection, and adverse effects of immunosuppressive drugs, limit its feasibility. This project proposes a novel cell therapy approach involving the autologous transplantation of myeloid cells that have been ex-vivo trained using STING-Dependent Adjuvants (STAVs), which activate the STING pathway and possess anti-fibrogenic properties, as a non-pharmacological alternative treatment for pulmonary fibrosis. The project aims to investigate the effects of myeloid cell transplantation on lung and gut microbiota during pulmonary fibrosis. By mitigating morbidity and mortality, this approach aims to enhance patient quality of life, reduce transplant waiting lists, and alleviate public healthcare costs associated with patient treatment and hospitalizations.

Prof. Patricia Silva Golo

Period: February, 2023 - July, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Invertebrate Pathology
Previously: Federal Rural University of Rio de Janeiro - BR
Research institute: Infectiology and Public Health (ISP) / Centre INRAE Val-de Loire, University of Tours - Tours
Host scientist: Dr Foteini Koutroumpa

BIOGRAPHY

Patrícia is a veterinary physician and a permanent professor at the Department of Animal Parasitology at the Federal Rural University of Rio de Janeiro. In the last six years she has been granted as a Young Scientist of Our State by the Carlos Chagas Filho Research Support Foundation of the State of Rio de Janeiro (FAPERJ). In 2021, she received the Early Career Award from the Society for Invertebrate Pathology. Patricia coordinates the extension project The Secret World of Parasites, and her research area has an emphasis on the biological control of invertebrates, with a focus on arthropods, especially *Rhipicephalus microplus* ticks, using entomopathogenic fungi and studying their endophytic capacity.

RESEARCH QUESTION

Exploiting the poultry red mite chemosensation for improvement of its control with entomopathogenic fungi

The Poultry Red Mite is considered the number one arthropod enemy of the poultry industry; this pest is hardly studied in terms of alternative control. The enormous economic loss they caused worldwide and the inefficacy of its control urge for solid solutions. One of the reasons why *Dermanyssus gallinae* is so challenging to manage is its hiding nature. Indeed, no treatment can reach them efficiently in their hiding spots. It is believed that, unlike insects, chemosensory stimuli are recognized in mites through receptors located in their legs (forelegs mainly). However, more work must still be conducted on other body parts, including mouthparts. The question in our project permeates the chemosensory response of the Red Poultry mite challenged with entomopathogenic fungi, recognized by their ability to colonize and often kill arthropod hosts after contact with their cuticle. These fungi are considered safe for vertebrates. By understanding the chemosensory mechanisms involved in the interaction of the entomopathogenic fungus and the mite, it is possible to devise better strategies for its control.

Prof. Georg von Samson-Himmelstjerna

Period: July, 2023 - October, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Veterinary Parasitology
Previously: Free University of Berlin - DE
Research institute: Infectiology and Public Health (ISP) / Centre INRAE Val de Loire, University of Tours - Tours
Host scientist: Dr Cédric Neveu

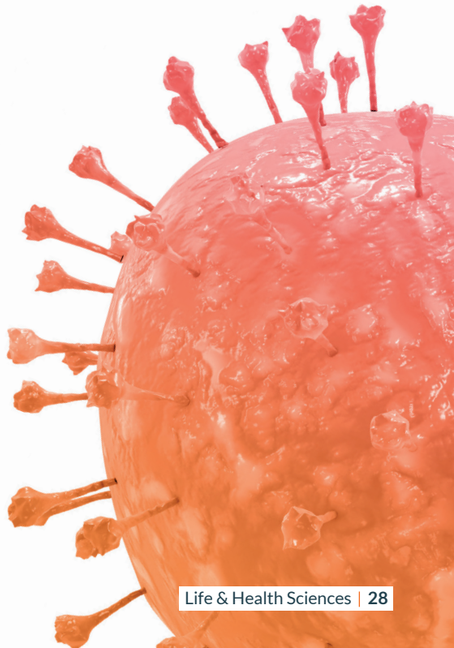
BIOGRAPHY

Dr. Georg von Samson-Himmelstjerna is Professor for Parasitology and director of the Institute for Parasitology and Tropical Veterinary Medicine, Freie Universität Berlin, Germany. Before this he was Professor for Molecular Parasitology at the University of Veterinary Medicine Hannover, Germany, where he previously also obtained his doctorate and his habilitation in veterinary parasitology. From 1996 to 2000 he was the head of the laboratory for molecular helminthology at Bayer AG. His main research interests include the molecular investigation of the mode of anthelmintic action and mechanisms of antiparasiticide resistance. Particularly the issue of anthelmintic resistance in equine gastro-intestinal parasites for which he conducted numerous fundamental research and field studies. Since 2021 he is the speaker of the board of the Veterinary Center for Resistance Research (TZR) at FU Berlin.

RESEARCH QUESTION

Drug efflux-mediated processes of anthelmintic resistance in ascarids

Infections with parasitic worms (helminths) represent a major health threat for both humans and animals. In the latter they occur at often very high prevalences and on a global scale. Due to a near complete lack of immuno-prophylactic measures the metaphylactic use of chemotherapeutics i.e. the anthelmintics is the corner stone of worm control since decades. This has resulted in widespread anthelmintic resistance in a range of helminth species. The gastrointestinal nematodes and so called roundworms or ascarids have evolved resistance. This results in an increasing clinical issue e.g in horses infected with the large roundworm Parascaris spp. To improve the sustainable use and provide solutions for the resistance problem we need to understand the molecular mechanisms of anthelmintic resistance. In the present project the P-glycoprotein (Pgp) based drug efflux as a non-drug target associated mechanism of resistance has been addressed in Parascaris. The model nematode Caenorhabditis elegans was employed and the specific role of the Pgp3 was examined.



LE STUDIUM RESEARCH CONSORTIUM

ARC SYNAPTIC PLASTICITY CONSORTIUM

Dr Lucie Pellissier

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Lucie Pellissier, a CNRS researcher at UMR PRC, is dedicated to advancing neurobiology and therapy development. From Paris to Montpellier for her studies, her doctoral research delved into serotonin receptors in Parkinson's disease. Lucie then developed gene therapy for retinal dystrophies at the Netherlands Institute for Neurosciences in Amsterdam. Returning to France in 2015, she led multiple projects funded by ERC, INRAE Post-agreenskills funds, and LabEx MAbImprove. Lucie was awarded the CNRS bronze medal in 2022. Her current research focuses on unraveling the molecular mechanisms underlying social interactions and developing antibody-based therapies for autism spectrum disorders, including exploring the role of the synaptic plasticity protein Arc.

RESEARCH QUESTION

Our abilities to learn, memorize new information and adapt to a new environment depend on synaptic plasticity, including Arc proteins. Despite its importance, its regulation, cellular functions, and behavioral implications remain enigmatic. Our European and complementary consortium aims to elucidate Arc's role in the brain. Leveraging novel imaging techniques, we aim to explore its dynamic regulation and cellular functions, including its ability to oligomerize and form viral-like capsids, and their physiological significance. Finally, we'd like to investigate Arc's impact on behavior, unveiling its precise role in mammalian functioning and its implication in neurological disorders. This consortium funded by Le Studium creates the unique opportunity to unravel the mystery of the Arc protein.

BIOPHARMACEUTICALS
Innovation Dynamics in Health
IN REGION CENTRE-VAL DE LOIRE

Partners

Prof. Clive R. Bramham
is an expert in cellular neuroscience, neurodegenerative disorders
> University of Bergen - Norway

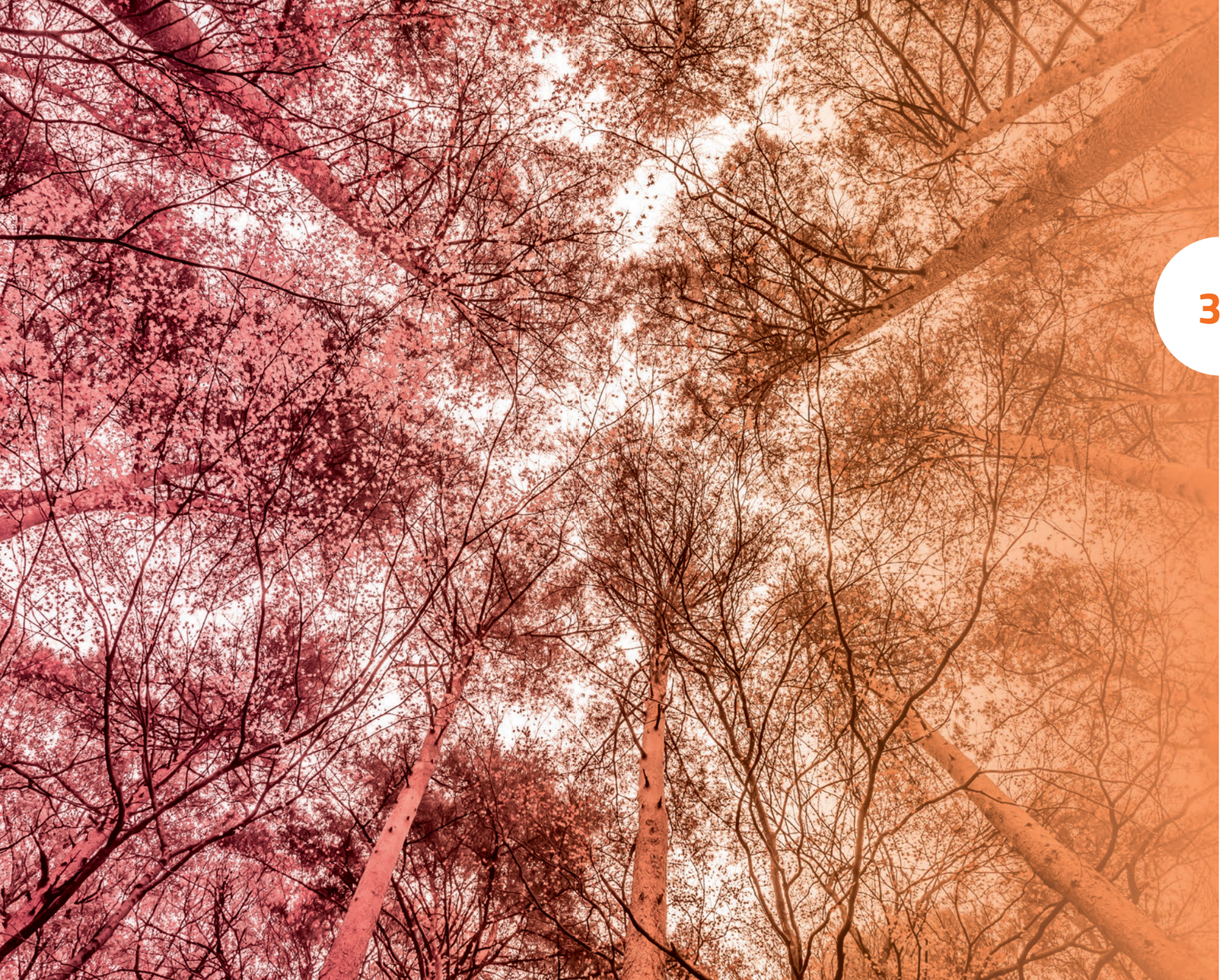
Prof. Petri Kursula
is an expert in structural biology, protein biochemistry
> University of Bergen - Norway

Prof. Antonio Cattaneo
is an expert in biotechnologies, antibody development, neurodegenerative disorders
> European Brain Research Institute Roma - Italy

Dr Marco Mainardi
is an expert in biotechnologies, neurodegenerative disorders
> National Research Council (CNR) - Italy

Dr Corinna Giorgi
is an expert in RNA biology, neurodegenerative disorders
> Institute of Molecular biology and Pathology of the National Council of Research - Italy

Dr Katarzyna Radwanska
is an expert in behavioral neurosciences, alcool use disorder
> Polish Academy of Sciences, Warsaw - Poland



3 EARTH, ECOLOGY & ENVIRONMENTAL SCIENCES

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Prof. Robert Marshall

Period: January, 2023 - June, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Space Physics
Previously: University of Colorado Boulder - USA
Research institute: Laboratory of Physics and Chemistry of Environment and Space (LPC2E) / CNRS, University of Orléans, CNES - Orléans
Host scientist: Dr Jean-Louis Pinçon

BIOGRAPHY

Professor Marshall completed his PhD in Electrical Engineering from Stanford University in 2009, focusing on the impacts of lightning electromagnetic pulses on the Earth's upper atmosphere, ionosphere, and magnetosphere. He has been a professor in Aerospace Engineering Sciences at the University of Colorado Boulder since 2015, with research focused on lightning impacts in space, the dynamics of the Earth's radiation belts, and the impacts of radiation belt electrons on the Earth's upper atmosphere. His research group is currently developing three small satellite missions, called AEPEX, CANVAS, and COSMO, that will measure these effects in the space environment using energetic X-rays, electromagnetic waves, and magnetic fields.

RESEARCH QUESTION

The Radiation Environment in Near-Earth Space and its Impact on the Earth's Atmosphere

Lightning-generated electromagnetic pulses convert into whistler-mode plasma waves as they propagate through the ionosphere and into the magnetosphere. These whistler waves are responsible for scattering radiation belt electrons and driving them into the Earth's upper atmosphere, where they influence atmospheric chemistry and circulation. Quantifying the impact of lightning on the magnetosphere, including radiation belt electron scattering, requires an accurate assessment of the whistler waves that penetrate the ionosphere. We use data from the DEMETER mission, built and operated by LPC2E between 2004-2010. Analysis of this dataset reveals features of the waves, including amplitudes and propagation direction, which strongly influence their effect on the radiation belts. Further, we use lessons and heritage from the DEMETER mission to inform design decisions and data analysis techniques for the upcoming CANVAS mission, a collaboration between the University of Colorado Boulder and LPC2E. The CANVAS CubeSat borrows heritage from DEMETER, but condenses the mission into a 6 kg spacecraft. CANVAS is scheduled for launch in early 2025.

Dr Oleksii Naumenko

Period: February, 2023 - January, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: Geology
Previously: Institute of Geological Sciences of the National Academy of Sciences of Ukraine - UA
Research institute: French Geological Survey (BRGM) - Orléans
Host scientist: Dr Anne-Marie Desaulty

BIOGRAPHY

Oleksii Naumenko is a scientist with 33 years of experience in the field of oil and gas exploration. Currently a senior researcher at the Department of Oil and Gas Geology at the National Academy of Sciences of Ukraine, he specializes in predicting hydrocarbon deposits and researching environmental impacts of oil spills. He is also engaged in paleogeographic modeling in Ukraine.
Dr. Naumenko's contributions to academia are underscored by over 80 scientific publications, with his recent works focusing on the distribution of geochemical characteristics within zones affected by oil pollution.

RESEARCH QUESTION

Environmental impregnation after an industrial accident in a dense urban environment: search for markers and their transfer to the hydrosystem

The project focused on the aftermath of the fire that occurred at the Lubrizol and Normandie Logistique companies in September 2019. The main goal of the project was to develop a scientific and technological strategy utilizing a forensic approach employing molecular and isotopic multi-tracing techniques.
The objectives of our project were threefold: 1) characterize the products generated by the fire to establish distinct signatures; 2) determine the propagation and transfer of these products within the environment, including surface water, groundwater, soils, and sediments; 3) distinguish the contamination signals resulting from the fire from those originating from historical industrial activities within the densely populated urban area.
Our methodology has the potential to be applied to future industrial accidents. By employing molecular and isotopic characterization in environmental monitoring, it can facilitate the identification of specific signatures. This approach enables the implementation of tailored responses to safeguard human health and mitigate environmental impacts effectively.

Dr Uliana Naumenko

Period: February, 2023 - January, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: Geology
Previously: Institute of Geological Sciences of the National Academy of Sciences of Ukraine - UA
Research institute: French Geological Survey (BRGM) - Orléans
Host scientist: Dr Wolfram Kloppmann

BIOGRAPHY

Uliana Naumenko is a scientist with 30 years of experience in the field of structural geology and minerals. She is a senior researcher at the Department of Mineral Geology of the National Academy of Sciences of Ukraine with a specialisation in geological structures and mineral deposits. Her activities also include comprehensive studies of industrial and technogenic wastes in Ukraine and the development of a classification of their main types by resource potential.
She has more than 125 scientific publications and the latest works are focused on the study of fossil resins in Ukraine, the identification of promising and industrial amber deposits, as well as historical routes of its distribution.

RESEARCH QUESTION

Materi-A-Net: Material as an actor in the transcultural networks between France and Germany in the late Middle Ages and early modern period

As a Ukrainian scientist, Naumenko received a grant from the programme dedicated to researchers at risk and joined the international ANR-DFG FRAL Materi-A-net project. The project is interdisciplinary and combines research in history, art history, geology and digital technologies to create a more complete picture of the interaction between the past and the present. The traceability of geological materials in past and present world trade is an important issue for scientists of different subjects, and for industry, regulators and controlling bodies. Assessing the circulation of such materials will allow us to reconstruct both ancient trade routes and modern global supply chains. The methods are based on geochemical research as a means of tracing manufactured objects to their natural origin, i.e. mineral deposits. The aim of the study is to create a pan-European database of historical alabaster production and geochemical fingerprints in order to link works of art of known and unknown origin to the sites of natural material extraction and to compare the results with knowledge and hypotheses from art historical analysis and archives.

Dr Rock Ouimet

Period: April, 2022 - April, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Forest nutrition and soils
Previously: Quebec Ministry of Forests, Wildlife, and Parks, Forest Research Branch - CA
Research institute: INRAE - UR Ecosystèmes Forestiers (EFNO), Nogent sur Vernisson
Host scientist: Dr Nathalie Korboulewsky

BIOGRAPHY

Rock Ouimet got his Ph.D. from the Faculty of Forestry, Geography, and Geomatics at Laval University in 2015, with the speciality in forest soils and tree health. He has been working for the Quebec government at the Forest Research Branch for 35 years. He has been involved in forest soil related research including critical loads of acid deposition for forests, forest decline and dieback, forest health monitoring, forest ecosystem carbon accumulation and cycle, and long-term effects of biomass harvesting in the boreal forest in Eastern Canada.

RESEARCH QUESTION

Application of the critical biomass harvesting concept for improving the diagnosis of soil sensitivity to forest biomass harvesting in the Centre-Val de Loire region

The use of residual biomass from forest harvesting for energy production is viewed increasingly as a means to reduce fossil-fuel consumption and mitigate climate warming. However, the impact of wood energy harvesting on soil and future site productivity remains a major concern. In France, a diagnostic key at the national scale has been set up to predict soil sensitivity to tree biomass harvesting. According to this key, most of the Centre-Val de Loire region is considered highly sensitive to forest biomass harvesting. However, this sensitive forest area warrants further investigation. A more precise approach at the local scale needs to be developed with respect to 1) the forms of organic carbon present in these soils, and 2) inputs and outputs from the soil system.

Prof. Neil Sturchio

Period: September, 2023 - November, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Environmental Geochemistry
Previously: University of Delaware - USA
Research institute: French Geological Survey (BRGM) - Orléans
Host scientist: Dr Patrick Ollivier

BIOGRAPHY

Prof. Sturchio is a geochemist who received his Ph.D. in Earth and Planetary Sciences from Washington University (St. Louis, USA) in 1983. He was a member of the scientific staff of the Argonne National Laboratory from 1983-2000. Subsequently, he served as Professor and Head of the Department of Earth and Environmental Sciences at the University of Illinois at Chicago, and his current position is Professor in the Department of Earth Sciences at the University of Delaware and Director of the Environmental Isotope Science Laboratory. His principal research interests include stable and radioactive isotope studies of groundwater contaminants. He is a Fellow of the Geological Society of America, and a Geochemistry Fellow of the Geochemical Society and the European Association of Geochemistry.

RESEARCH QUESTION

Groundwater contamination in France: A legacy of World War I

The widespread occurrence of perchlorate in groundwater of northern France, in the region affected by military activities during World War I (WWI), was first revealed in a nationwide survey of groundwater quality in 2011. Perchlorate is a persistent contaminant that is soluble in water and highly mobile. It presents a substantial health risk to the human population with its effects on thyroid hormone production and development of the nervous system. Human exposure occurs primarily through ingestion of water and agricultural products such as leafy vegetables. The research explored questions pertaining to the extent to which perchlorate can be attributed to legacy contamination from WWI munitions as opposed to other sources (e.g., regional atmospheric deposition or nitrate fertilizer imported from Chile). We used the isotopic analysis of perchlorate and related compounds (chlorate, nitroaromatics) extracted from groundwater and unexploded WWI munitions collected along the battlefront. Data are being considered in the context of natural environmental processes affecting the transport and chemical transformations of these contaminants.

Prof. Juan César Vilardi

Period: September, 2023 - November, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Professorship
Speciality: Population Genetics
Previously: University of Buenos Aires - AR
Research institute: Integrated Biology for the Development of Tree and Forest Diversity» (BioForA), Centre INRAE Val-de-Loire, ONF - Orléans
Host scientist: Dr Philippe Rozenberg

BIOGRAPHY

Juan César Vilardi obtained the PhD in Biological Sciences at the University of Buenos Aires (UBA). He was a Member of the Argentine National Council of Scientific and Technical Research and Full Professor at the Dept of Ecology and Evolutionary Genetics (UBA). Currently he is Consulting Full Professor (UBA). His courses focused on Evolutionary and Population Genetics. Since 1992 Vilardi is founder and Director of the Laboratory of Applied Population Genetics (UBA), and throughout his career he published more than 150 articles in international journals. He collaborates with the Centre INRAE Val de Loire since 2004.

RESEARCH QUESTION

Adaptive strategies of forest trees to climate changes: Microevolution and Plasticity

Using an elevation gradient a dendroecological and genetic analysis will be conducted with the aims to estimate the local adaptation of phenotypic traits derived from the microdensity profiles in the European larch. Molecular markers (SNP) will allow to investigate the genetic determinism of phenotypic plasticity along the elevation gradient. A cross transplantation trial installed along the same elevation gradient is starting to produce its first data. The response of distinct genotypic group to each elevation will allow to estimate the potential of adaptation by genetic variation. The transplantation throughout the elevation gradient simulates the migration of genotypic groups, therefore, this trial allows to estimate simultaneously all components of the local and by-migration adaptation potential of the model species under study. Consistency in the results from the two complementary approaches, one based on the cross transplantation trial and the other using the retrospective study of the in-situ response of mother trees to climate, would give strong support to the observed trends.
The expected results are quantification and separation of the effects of spatial phenotypic plasticity and genetic variation on the response of a forest tree species to climate variations.

LE STUDIUM RESEARCH CONSORTIUM

GLOBAL DIGITAL SOIL MAP (GLADSOILMAP)

Dr Dominique Arrouays

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Chair of the GlobalSoilMap Working Group of the International Union of Soil Sciences - Past member of the IPCC (Nobel Peace Prize, 2007). Three best papers in Pedometrics (2008, 2010, 2019). Gold medal of the French Academy of Agriculture (2014). Past member of the ITPS of the UN-FAO Global Soil Partnership (2013-2015). Chair of the GLADSOILMAP Consortium. Cited by Food-Tank among the 13 most influential soil scientists from around the globe working to better understand soils and promote practices for maintaining healthy, fertile lands (2017). Top 2% of global researchers (Stanford list). Member of the Editorial boards of: Geoderma, Geoderma Regional, Remote Sensing, Frontiers in Soil Science, Soil Security. Editor-in-Chief of the French Journal of Soil Science. More than 200 referred journal articles. - INRAE, InfoSol, France.

RESEARCH QUESTION

Soils have critical relevance to global issues, such as food and water security, climate regulation, sustainable energy, desertification and biodiversity protection. All these examples require accurate national soil property information and we provide scientific support to develop reliable baseline soil information and pathways for measuring and monitoring soils. Soil sustainable management is a global issue, but effective actions require high-resolution data about soil properties. Digital Soil Mapping (DSM) is used by the scientific community to generate high-resolution maps of soil properties over large areas. Two projects, GlobalSoilMap and SoilGrids, aim at delivering the first generation of high-resolution soil property grids for the globe, the first one by a bottom-up approach (from country to globe), the latter by top-down (global). The GLobAl Digital SOIL MAP (GLADSOILMAP) consortium brings together world scientific leaders involved in both projects. The consortium aimed at developing and transferring methods to improve the prediction accuracy of soil properties and their associated uncertainty, by using legacy soil data and ancillary spatial information. Adopting a novel approach, the consortium brought together new technologies and methods, existing soil databases and experts knowledge in the view to achieve convergence between top-down and bottom-up approaches, and to generate methods for delivering maps of soil properties.

Partners

Prof. Budiman Minasny
is an expert in in pedometrics and Digital Soil Mapping
> University of Sydney - Australia

Dr Vera Leatitia Mulder
is an expert in remote and proximal sensing for soil assessments
> Wageningen University - The Netherlands

Dr Laura Poggio
is an expert in spatial and (geo)statistical modelling and integration of environmental data at different spatial scales
> ISRIC-World Soil Information - The Netherlands

Dr Pierre Roudier
is a soil scientist, proximal and remote sensing specialist, and spatial modeller
> LandCare Research - New Zealand

Dr Zamir Libohova
is an expert in Digital Soil Mapping (DSM) and Soil Modeling
> Natural Resources Conservation Service

LE STUDIUM RESEARCH CONSORTIUM

H'ALLO VOLCANO ! : AN INTERDISCIPLINARY STUDY ION THE ATMOSPHERIC PLUME PRECESSING AND IMPACTS OF VOLCANIC HALOGEN EMISSIONS

Dr Tjarda Roberts

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Dr Tjarda Roberts is a CNRS Researcher in atmospheric chemistry. Prior to moving to Orléans as a researcher at LPC2E (Laboratory of Physics and Chemistry of the Environment and Space), she undertook her PhD on volcanic plumes at the University of Cambridge, and postdoctoral research on Arctic pollution in Norway. Roberts currently teaches Géosciences at the LMD Paris Ecole Normale Superiéure. Her group investigates the impacts of volcanic emissions and other pollutant sources to the atmosphere, through the development of numerical modelling tools that simulate the plume atmospheric chemistry processes, and in-situ "low-cost" sensor measurements of gases and particles at the volcano crater-rim. She was awarded the CNRS Bronze Medal in 2020, and her profile featured in a Bande Déssinée commissioned by CNRS dr08 "Les Sciences'Elles" in 2021.

RESEARCH QUESTION

The "H'allo Volcano!" Consortium seeks to improve understanding of the environmental impacts of volcanic halogens. As well as sulfur and ash, volcanoes emit halogens (HCl, HBr, HF, HI) to the atmosphere. These can be converted by chemical reactions within the plume into reactive forms such as BrO which cause the destruction of atmospheric ozone and deposition of toxic mercury. Plume halogen processes are complex, involve multi-phase chemical reactions, and occur over scales from meters at the hot 1000˚C crater vent up to 1000's km as the plume cools and is transported and dispersed downwind. Volcanic halogen emissions vary over time and depend on magmatic conditions. By combining the development of new models and satellite observations with fieldwork measuring the plume of Mt Etna (Italy), we aim to decipher the atmospheric processing of volcanic halogens, and thereby quantify the chemistry-climate impacts of volcanic eruptions. With this knowledge we also seek to unlock the potential to use observations of volcanic BrO to inform the monitoring of eruptive activity hazards.

Partners

Dr Jonas Kuhn
is an expert in developing remote sensing instruments for measuring and imaging volcanic gases such as BrO and SO2 and in high-temperature modelling of volcanic plume chemistry
> University of California - United States of America

Dr Nicole Bobrowski
is an expert in field-observations at volcanoes, including remote sensing measurements which led to her discovery of volcanic BrO, and drone-based in-situ sampling of reactive halogens in volcanic plumes
> National Institute of Geophysics and Volcanology, Catania - Italy

Alexander Nies
is an expert in modelling volcanic plume chemistry from the hot emission to the cooled plume, including reactive halogens such as BrO and their impacts on ozone and mercury. Alexander is also experienced in remote sensing instrumentation from his masters research.
> LPC2E University of Orléans, France and University of Heidelberg - Germany

Prof. Thomas Wagner
is an expert in high-resolution TROPOMI satellite observations of volcanic BrO and SO2, that can be traced over days downwind, as leader of the MPIC Satellite Remote Sensing Group
> Max Planck Institute for Chemistry, Mainz - Germany

4 COMPUTER SCIENCE, MATHEMATICS & MATHEMATICAL PHYSICS

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Prof. Marko Hölbl

Period: May, 2023 - August, 2023
Programme: ATHENA VISITING RESEARCHERS PROGRAMME
Award: LE STUDIUM / ATHENA Visiting Researcher
Speciality: Computer Science, Cybersecurity
Previously: University of Maribor - SI
Research institute: System and Data Security (SDS), Orléans Computer Science Laboratory (LIFO) , INSA Centre Val de Loire, University of Orléans - Orléans
Host scientist: Prof. Patrice Clemente

BIOGRAPHY

Marko Hölbl's research covers cybersecurity and privacy broadly, ranging from cryptography to user aspects of information security and privacy. He is currently the vice dean for research at FERI UM. He is an active member and secretary-general of the CEPIS LSI, a member of ECSO (WG6), executive board member of the National Cybersecurity Group with the Chamber of Commerce and Industry of Slovenia. He was the institutional coordinator of the EC H2020 project CyberSec4Europe and participated in many other projects (e.g., ATHENA, Cyber F-IT, TechWhiz, DiT4LL, InSign ECESM, RUKIV, etc.).

RESEARCH QUESTION

Privacy & Integrity in the Internet of Medical Things

The project covers security protocols for IoMD (Internet of Medical Devices). Authentication, access control, use control, privileges, and data protection are a few security methods that play a crucial role and must be customised for the specific environment. The security of digital medical devices (DMD) requires end-to-end security. Security needs are currently poorly addressed. We aim to propose solutions on the-two following major axes: (1) ensuring physical, hardware and software integrity for individuals and their DMD and (2) protection of individuals' private data for real use case scenarios (hospital, urban, domestic).
Ensuring DMD and integrity involves protecting monitoring/reporting procedures and control/command ones. We focus on authentication and access control models. Therefore, we evaluate and determine if, for any operation that tends to interfere, interact or reprogram a DMD, existing protocols and access models can be adapted or if new ones need to be designed. Additionally, to enforce the safety and security of information flows between local (implants, portable devices, relay stations) and remote DMD, we study if the different kinds of Internet of Things (IoT) networks may be suitable for the IoMT (Internet of Medical Things) context.

Dr Félix Iglesias Vázquez

Period: September, 2023 - December, 2023
Programme: ARD CVL JUNON PROGRAMME
Award: LE STUDIUM Research Professorship
Speciality: Machine learning and data analysis
Previously: TU Wien - AU
Research institute: PRISME Laboratory / University of Orléans, INSA CVL - Orléans
Host scientist: Dr Frédéric Ros

BIOGRAPHY

Dr Iglesias currently holds a Senior Scientist position at the Institute of Telecommunications, TU Wien. He has worked on AI and machine learning for more than 20 years, including R&D for companies in Spain and Austria, and facing challenges in diverse fields: smart grids, cyber-physical systems, industrial processes, behavioral modeling, network security, medicine, earth sciences, etc. For the academia, he has designed and lectured classes and laboratories in Spain, Austria and Ireland in electronics, physics, building automation, network security, machine learning and data analysis; also supervising projects and theses of students and junior scientists. He has published more than 50 papers in reputed scientific conferences and journals and reviewed for main venues related to machine learning and network security.

RESEARCH QUESTION

Development of digital twin software prototypes and validation of communication protocols

The JUNON programme aims to develop digital tools to improve the monitoring and understanding of the environment, with a better management of natural resources in the Centre-Val de Loire region.
Dr Iglesias is involved in the conceptualization and development of a digital twin that operates on the natural resources of the Centre-Val de Loire region in order to model such resources in a harmonious and effective way. This implies a first phase of design of the data integration technologies. The goal is to reach the architectures that best meet the technical requirements and best fit the available data resources. The part concerning the "digital twin" is placed at the logical and physical core of the JUNON programme and is articulated as a fundamental tool for the cohesion of the various parties and partners involved. At a later stage, from a global and integral perspective, Dr Iglesias will also participate in the design of AI algorithms and use cases that should govern the functioning of the digital twin as a whole.

Prof. Dieter Spreen

Period: April, 2023 - September, 2023
Programme: ATHENA VISITING RESEARCHERS PROGRAMME
Award: LE STUDIUM / ATHENA Visiting Researcher
Speciality: Mathematical logic and theoretical computer Science
Previously: University of Siegen - DE
Research institute: Computer Science Laboratory of Orléans (LIFO) / University of Orléans, INSA Centre-Val de Loire - Orléans
Host scientist: Prof. Jérôme Durand-Lose

BIOGRAPHY

Dieter Spreen is a mathematician with a long teaching and research experience in mathematical logic and theoretical computer science. His particular research interest is in topology, domain theory, logic, type theory and computability theory. In domain theory his work is on logical characterizations of certain domain classes and the construction of domain models of higher-order constructive logics and type systems, and in computability theory his special interest is on effectively given structures and the computation with infinite objects such as the real numbers. In 2013/2014 he worked as a Visiting Research Professor at the University of South Africa and in the period 2017-2023 he coordinated the large international EU funded project *Computing with Infinite Data*.

RESEARCH QUESTION

A Domain-theoretic Model Construction for Coquand/Huet's Calculus of Construction

Software is produced by humans and thus error-prone. To guarantee that such products work correctly, according to the given specification, they are normally tested against a variety of possible scenarios. As experience shows not all errors will be found this way, leading to back-up cycles. When safety is an issue, this approach is thus unreliable: the correctness has to be formally proven. Given the size of such software packages, doing the proofs by hand is tedious. Interactive proof assistants based on constructive logic have been developed that automatically generate large parts of the proof. The Calculus of Constructions is one of the most powerful such logics. It consists of three logical levels: proofs, propositions, kinds. The kinds are the types of operations (constructions of propositions). Both, the levels of propositions and of kinds, are closed under general rules of quantification. A model construction involves giving meaning to the objects of each of the three levels in such a way that the quantification rules are satisfied. The aim is to give a construction that uses ordered structures (domains). In the present work domain constructions used for the interpretation of the quantification constructs are presented in a general way and computability issues are discussed.

LE STUDIUM RESEARCH CONSORTIUM

EXPLORATION OF DUALITY, GEOMETRY, AND ENTANGLEMENT

Prof. Sergey Solodukhin

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Sergey Solodukhin has studied theoretical physics at Moscow State University that he finished in 1987 and the PhD studies in 1990. Since then he had a number of temporary positions in Canada, the Netherlands and Germany. He was a part of the group of Prof. Gerard't Hooft in Utrecht for the period 1998-2000. Since 2007 he became a full professor at the Laboratory of Theoretical and Mathematical Physics (LTMP) at University of Tours. Later LTMP was transformed to Institut Denis Poisson (IDP). Prof. Solodukhin has made a number of important contributions in the holographic AdS/CFT correspondence, entanglement entropy of black holes and entropy in conformal field theories and quantum gravity. In the recent years he has been working on the conformal anomaly in theories with boundaries and on the two-dimensional models of quantum black holes.

RESEARCH QUESTION

The black holes raise the important fundamental questions regarding the consistency of our understanding of basic rules of the Universe around us. Initially obtained as a rather simple mathematical solution of the equations of gravity proposed by A. Einstein the black holes later became the most surprising object of study in physics. Indeed, it was indicated by the works of S. Hawking and J. Bekenstein that, semiclassically, black holes radiate at a certain temperature that depends on the mass and as any other thermal objects they have entropy that occurs to be proportional to the area of the black hole horizon. Since this fundamental theoretical discovery it became an important question what degrees of freedom are counted by this entropy. Despite the remarkable progress during the recent years in answering this question the universal answer that explains the entropy not relying on addition symmetries is still absent. A related issue is the problem of the quantum information that appears to be lost if the black holes evaporate down to .. nothing. These issues may be not only purely theoretical but also may have certain observational consequences that potentially can be experimentally tested using the gravitational waves experiments.

Partners

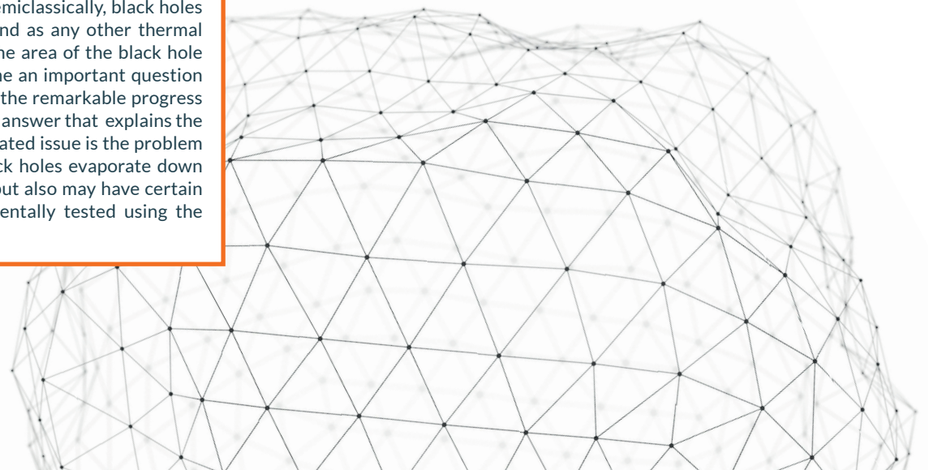
Prof. Gary Gibbons
is an expert in gravitational physics, black holes, string theory
> University of Cambridge - United Kingdom

Prof. Christopher Herzog
is an expert in holographic duality, applications to condensed matter, defects and anomaoies in conformal field theories
> King's College - United Kingdom

Prof. Erik Tonni
is an expert in conformal field theory, geometric aspects of holography, entanglement entropy
> International School for Advanced Studies (SISSA) - Italy

Prof. Jan de Boer
is an expert in string theory, AdS/CFT holography
> University of Amsterdam - The Netherlands

Prof. Manuela Kulaxizi
is an expert in AdS/CFT holography, conformal field theory, black holes
> Trinity College Dublin - Ireland



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Prof. Maya Boutaghou

Period: September, 2022 - June, 2023
Programme: SMART LOIRE VALLEYROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Comparative Literature
Previously: University of Virginia - USA
Research institute: POuvoirs, LEttres, Normes (POLEN) / University of Orléans - Orléans
Host scientist: Prof. Aude Déruelle

BIOGRAPHY

Maya Boutaghou is Associate Professor of French and Global Cultures at the University of Virginia and Andrew W. Mellon Faculty (Institute of the Humanities and Global Cultures). Her main research areas in Comparative Literature include: Multilingualism, Postcolonial Literatures, Literary Theory, Theory of the Subject, Historiography and Cultural Theory. She is the author of *Occidentalismes, Romans historiques postcoloniaux et identités nationales au XIX^e siècle* (2016), Honorable Mention - ICLA Ana Balakian Prize 2019, and *Ernest Renan, Qu'est-ce qu'une nation? Genèse et postérité, de l'Empire à la nation* (2020). She guest-edited several journal issues and one collective volume. Her works are published in international journals and edited volumes in French and in English. With Anne Donadey she is currently preparing the Dictionnaire Assia Djebar (with Honoré Champion).

RESEARCH QUESTION

Interdisciplinary forms of historical writings in colonial and postcolonial contexts

"Colonial and Postcolonial Urban Historiographies" in combination with "alternative forms of historical writings", develops how urban colonial and postcolonial cities are archival material accessible to understand colonial and postcolonial urban sensorial fabric and violence. Literature and visual arts are core to this exploration of modern urban culture. The sensorial/emotional dimension of this complex urban fabric is missing. It can be restored by an interdisciplinary approach inviting literary scholars to fill the textual gap.

Goals: Development of a website with organized digitalized archives, links to other institutions with access to public archives; this website should also host podcasts related to public intellectual history from the francophone diasporic voices. The digital project is core to the follow up of the "Interdisciplinary forms of historical writings"; it will make visible the connections, between sensorial experiences in colonial contexts, contemporary voices and academic discourse.

Dr Alberto Campagnolo

Period: May, 2022 - April, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Research Fellowship
Speciality: Codicology, Digital Humanities
Previously: University of Udine - IT
Research institute: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours - Tours
Host scientist: Prof. Elena Pierazzo

BIOGRAPHY

I trained as a book conservator in the European Course for Conservators-Restorers of Book Materials, Spoleto (1998-2001). I obtained a BA in Conservation of Cultural Heritage (Ca' Foscari University: 2001-2006), an MA in Digital Culture and Technology (King's College London: 2007-2009), and a PhD (University of the Arts, London: 2010-2015). I was a Mellon CLIR Postdoctoral Fellow in Data Curation for Medieval Studies at the Library of Congress (Washington, DC: 2016-2018), Research Fellow at the Schoenberg Institute of Manuscript Studies (University of Pennsylvania: 2019). Currently, I am a postdoc at the Université Catholique de Louvain and guest professor at KU Leuven.

RESEARCH QUESTION

From Features to Data Points & Pixels: Investigations into the Transmediation of the Artefactual Nature of Books in the Digital

This project explores how the physicality of books—traditionally understood through tactile engagement like feeling bumps and scratches—can be digitally transmediated, enhancing the study of books as three-dimensional objects beyond mere visual analysis. It poses the question: how can advanced imaging techniques like RTI (Reflectance Transformation Imaging) and photogrammetry digitally capture and convey the material aspects of books (manuscripts and printed) to support autoptic investigations and distant reading? By applying these experimental imaging technologies, the project aims to reveal the topography and stratigraphy of book surfaces, aiding the understanding of their material features and history. A key objective is to develop methodologies using accessible technologies (e.g., mobile phone cameras) and affordable software, enabling conservators and scholars to gather scientifically reliable data on books' physical characteristics without the need for specialized equipment. This approach promises to revolutionize the way we study the artefactual nature of books in the digital era.

Prof. Alina Goncharova

Period: March, 2022 - December, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: International private law
Previously: Sumy State University - UA
Research institute: Institute of Interdisciplinary Law Research (IRJI) / University of Tours - Tours
Host scientist: Prof. Fabienne Labelle

BIOGRAPHY

Professor of Sumy State University (Educational and Scientific Institute of Law). Main areas of research in civil law include the order of inheritance in the occupied territories, the process of registration of inheritance by children born thanks to reproductive technologies after the death of their parents, and the inheritance of intellectual rights.

Alina Goncharova was born in Ukraine, she received a PhD degree at Taras Shevchenko National University of Kyiv, majoring in «Civil Law and Civil Procedure; family law; international private law». For more than 17 years, she has been thoroughly engaged in the research of inheritance problems, she has more than 100 publications in international rating publications, has author's certificates. Award of the National University Odesa Law Academy «The best scientist of Ukraine in civil law» in 2016.

RESEARCH QUESTION

Inheritance problems in the zone of anti-terrorist operations and in the occupied territories

The goal is to form an understanding of the implementation of the right to inheritance, develop new recommendations aimed at solving the identified problems, and further improve the legislative regulation of relations that arise during the implementation of the right to inheritance. There are about 78 territories in the world with a similar status and protection, problems of property and other property rights in these territories periodically arise of varying degrees of severity and become the subject of consideration by various authorities, primarily the European Court of Human Rights. It should be noted that the provided opportunities remain unrealized for the heir due to insufficient awareness of citizens about their rights and the procedure for protecting inheritance rights. It is recommended to amend the legislation on the protection of property rights and acceptance of inheritance from a testator whose last place of residence or immovable property is located in the occupied territories. Analysis of precedents in Ukraine, study of violation of inheritance rights and development of the concept of human rights protection.

Dr Thais Hernández Campillo

Period: September, 2023 - December, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Researcher
Speciality: Educational Sciences
Previously: University of Camagüey - CU
Research institute: Research Team on Contexts and Education Actors (ÉRCAÉ), University of Orléans - Orléans
Host scientist: Dr Natalia Pino

BIOGRAPHY

Doctor in Educational Sciences by University of Camagüey, she is currently a research professor at the Center for Studies in Education Sciences which belongs to the University of Camagüey and collaborating professor at Department of Information Sciences. Dr. Hernández has participated in research projects with the University of Barcelona, and the University of Antwerp, Belgium on digital education. She is a scientific reviewer of indexed journals in the field of information sciences and educational sciences in Mexico, Argentina, Ecuador and Venezuela. She is a member of the Latin American Researchers Network and her research fields are information literacy competencies, educational digital content curation, continuing education and ICT as a support for educational processes.

RESEARCH QUESTION

Learning ecologies based on education digital content curation

The virtual environments have evolved education and the way students interact with teachers. These platforms make learning possible from any device, eliminating barriers of time and distance. From this point of view, the importance of innovating with technologies in the educational field is emphasized. However, education and the learning process take place in school and non-school, formal and informal contexts. It is pertinent to create teaching and learning spaces, supported by ICT, that integrate both training contexts and promote autonomous learning. The ecological theory of learning, as a media of educational innovation, recognizes that inside virtual spaces, different learning contexts can be found, as well as activities, resources, relationships and interactions that offers learning opportunities. Learning resources are essential for acquiring technical and professional competencies. It is necessary for the creation of these resources, the development of a content curation process where digital information is retrieved, created and shared according to the learning objectives, interests and informational needs of the students.

Dr Stefan Heßbrüggen-Walter

Period: September, 2023 - July, 2024
Programme: French Institutes for Advanced Study (FIAS) PROGRAMME
Award: LE STUDIUM / FIAS Research Fellowship
Speciality: History of philosophy
Previously: Free University of Berlin - DE
Research institute: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours - Tours
Host scientist: Prof. Elena Pierrazo

BIOGRAPHY

Stefan Heßbrüggen-Walter graduated from the university of Münster in 2001 with a dissertation on the notion of a mental faculty in Kant's Critique of Pure Reason. Between 2004 and 2012 he taught at Germany's only state distance teaching university, the Fernuniversität in Hagen. After that he joined a Russian university for eight years. As associate professor of philosophy with tenure in a department for philosophy and cultural studies, working mainly on the history of German philosophy between Melanchthon and Kant, and pursued interests in the application of methods from the digital humanities to philosophical research questions – his main area of research after leaving Russia in 2022.

RESEARCH QUESTION

The Afterlife of a Renaissance Genre: A Census of Dissertations in French Libraries 1500-1800

The dissertation is a genre that has its roots in academic practices of the later Renaissance. Academic manuscript dissertations can be traced back to its first half, print dissertations evolved during its second half, not only in Germany and France, but also in the Netherlands, and Scandinavia. "School philosophy" as an institutional practice continued to flourish in spite of the anti-scholastic polemics of the humanists. This project therefore investigates the holdings of French libraries with regard to this genre of academic text production. It aims to assemble a data set of consolidated metadata that will comprise at least 5000 titles, probably significantly more. The results of the project will provide a longitudinal view of academic knowledge production and teaching practices as well as insights into the paths of knowledge exchange in Europe. The project is interdisciplinary with regard to its subject matter – academic texts from philosophy, including mathematics and natural science, medicine, law, and theology – as well as its methodology, pursuing research questions at the intersection of book history and the history of knowledge.

Prof. Rudi Klanjšek

Period: May, 2023 - September, 2023
Programme: ATHENA VISITING RESEARCHERS PROGRAMME
Award: LE STUDIUM / ATHENA Visiting Researcher
Speciality: Sociology
Previously: University of Maribor - SI
Research institute: RÉceptions et MÉdiations de LIttératures et de Cultures Étrangères et comparées (RÉMÉLICE) / University of Orléans - Orléans
Host scientist: Prof. Karin Fischer

BIOGRAPHY

Dr Rudi Klanjšek is an Associate Professor of Sociology at the Department of Sociology, Faculty of Arts, University of Maribor, and a researcher at the Center for the Study of Post-Socialist Societies (CEPSS). His primary research area is the analysis of social change, focusing extensively on the future of work, issues of social deviance, mental health, the phenomenon of nationalism, and problems related to income inequality and poverty. He has published more than two hundred academic works on these topics, as a researcher and publicist he has been a visiting scholar at various foreign universities and contributes regulary to various magazines and newspapers.

RESEARCH QUESTION

Exploring relationships between housing and health among youth in the context of adverse structural conditions

Housing problems of youth are rarely considered in the context of youth health, although housing problems can be seen as a source of worry and stress, which, as evidenced by past studies, is negatively associated with health. Thus, the main aim of the present study was to examine whether and how housing status (rent/ownership – aspect of stability), housing conditions (lack of space, poor living conditions – aspect of quality) and perception of housing problems (fear of having a housing problem) were related to stress and assessment of health among Slovenian youth. Additionally, the study explored the effect of youth's economic background, as differences in health outcomes are often attributed to differences in socioeconomic status. The results indicated significant direct and indirect relationships between the financial situation of the family, housing status, living conditions, and fear of having a housing problem. Latter it was statistically significantly associated with the feeling of stress, which in turn was significantly related to the health assessment among youth. The results also indicated that poor living conditions directly affected the youth's health assessment. Implications for future work and housing policy are suggested.

Dr Sungyup Lee

Period: December, 2023 - February, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Translation Studies & Picture Books
Previously: Ewha Womans University - KOR
Research institute: InTRu (Interactions, Transferts, Ruptures artistiques et culturelles), University of Tours - Tours
Host scientist: Dr Cécile Boulaire

BIOGRAPHY

After defending her Ph.D thesis in 2010, Sungyup Lee worked as a lecturer at Ewha Woman's University in Seoul, South Korea. From September 2011 to August 2012, she was a postdoctoral fellow with Government of Canada Awards at Brock University in Canada. She is currently a lecturer and researcher at Ewha Woman's University. Her research focuses on the crossover picture books and the translation of picture books. Since 2000, she has carried out especially French crossover picture books published in the 1970s and 1980s with a five-year fellowship from the National Research Foundation of Korea. In addition to her research, she translates picture books between French and Korean and is as a president of KBBY, the Korean branch of IBBY (International Board on Books for Young People).

RESEARCH QUESTION

A Study on the Translation Strategies of Korean Picture Books published in France

This research aims to compare the trend of Korean picture books translated and published in France until 2023 with general Korean literature translated in the same way, observing translation strategies, and inferring the reasons for their choice. In general, the translation of children's literature, including picture books, is thought to emphasize the norms of the target language culture. We want to see if this is the case in the French translation of Korean picture books, and at what points it shows an emphasis on the host culture. This study therefore aims to identify major trends in the French translation strategies of Korean picture books by examining the ways in which French publishers cross linguistic and cultural boundaries when adapting Korean picture books.

Dr Albana Meta

Period: September, 2023 - June, 2024
Programme: French Institutes for Advanced Study (FIAS) PROGRAMME
Award: LE STUDIUM / FIAS Research Fellowship
Speciality: Ancient numismatics
Previously: Institute of Archaeology of Albania, Tirana - AL
Research institute: Archeomaterials Research Institute, Ernest-Babelon Center (IRAMAT-CEB) - CNRS / University of Orléans
Host scientist: Prof. Sylvia Nieto-Pelletier

BIOGRAPHY

Dr Albana Meta is a researcher in ancient history and numismatics at the Albanian Institute of Archaeology. She had her Ph.D at the Sorbonne University, Paris, with a thesis on the silver coinage of Dyrrhachium, which was published in 2015 by the French School at Athens. She was awarded the "Delepierre Prix" by the Association des Études grecques, in Paris and the "George Perrot Medal" by the French Academy (*Académie des Inscriptions et Belles Lettres*). She is the author of numerous articles dedicated to the coinages of south Illyria's cities. Since 2020 she is the chief editor of the archaeological reports' journal Candavia and since 2021, the co-director of the archaeological excavations at Çuka e Ajtoit (Albania), with the Sapienza University of Rome.

RESEARCH QUESTION

The coinage between Greeks and non-Greeks: the case of the Illyrians compared to the Thracians and the Celts

The study aims to analyse the birth and use of the coinage among the Illyrians, Thracians and Celts, the main three non-Greek societies in the territory of modern Europe. It focuses on the ways the coinage was introduced to these societies, on the historical events that led to the birth of their own coins, on imitations, circulation and hoards. Because of its practical aspect the coinage is very widely spread and the historical information we obtain by its study is fundamental in reconstructing the history of these societies which are particularly affected by the limited ancient literary sources.

By identifying the pattern of coinage introduction and spread, it is possible to draw, through a comparative approach, similarities and particularities in the adoption and usage of coinage between Illyrians, Thracians and Celts. The different forms of the appearance of money among these peoples are revelatory of their way of approaching certain aspects of the Greek civilization, as with the coinage they adopt images of the Greek gods and a specific ponderal system.

Dr Alexander Robinson

Period: October, 2022 - September, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Guest Research Fellow / MSCA PostDoctoral Fellowship (2022-2024)
Speciality: Musicology
Previously: University of Cambridge - UK
Research institute: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours - Tours
Host scientist: Prof. Philippe Vendrix

BIOGRAPHY

Before joining the CESR, he taught as an independent researcher at King's College London, Cambridge University, and the University of Surrey. He has contributed articles in French and English to *Musica Disciplina*, *French History*, *Journal of the Royal Musical Association*, *Revue de musicologie and The Musical Quarterly* (forthcoming). He is also co-editor of two forthcoming volumes: one for Routledge, with James Cook, Alexander Kolassa and Adam Whittaker (*History as Fantasy in Music, Sound, Image and Media*), the other for Brepols, with Marc Jaffré and Bram van Leuveren (*Marginalised Voices and Figures in French Festival Culture, 1500-1800*).

RESEARCH QUESTION

Music, Religion and Civic Identity in Renaissance Avignon (c.1500–1630)

The EU-funded interdisciplinary project AVIGNONMUSIC will reveal how musical life in Renaissance Avignon was directly interlinked with events happening on a broader religious, social and political level. Alongside being the first in-depth study of Avignon's musical life during this period, it represents a significant and much-needed departure from the Parisian/royal court focus that has typified almost all previous scholarship on French Renaissance music. Two fundamental issues provide the basis for this investigation: a) the question as to whether Avignon's musical life can be said to reflect localised and/or nationalised trends; and b) the effect that Avignon's unique status as a Papal enclave had on its institutions and musical practices. These broader issues serve as a backdrop for exploring the full spectrum of musicians' professional activities, as well as the various contexts within which they made the city resound – i.e. from its ecclesiastical establishments (such as Notre-Dame des Doms Cathedral and the Collégiale Saint-Agricol), to the instrumentalists attached to the city's guilds, to the various civic spectacles within which musicians participated (like ceremonial entries).

Prof. Eugeen Schreurs

Period: January, 2023 - May, 2023
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Visiting Researcher
Speciality: Musicology, Performing Arts
Previously: University College Antwerp, Royal Conservatory - BE
Research institute: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours - Tours
Host scientist: Prof. Philippe Vendrix

BIOGRAPHY

Eugeen Schreurs is both a musicologist and professional performer. He studied viola da gamba (W. Kuijken) at the Brussels Conservatory (1982) and musicology at the University of Leuven (1980). He obtained his PhD in 1991 with a study of musical life in Tongeren (c.1400-1797), applying the so-called urban musicology method. As co-founder and coordinator of the Alamire Foundation, international centre of the Music in the Low Countries (1990-2002) he led, together with B. Bouckaert, the groundwork for similar studies of other cities (i.e. Antwerp, Brussels, Diest, Ghent, Lier, Maastricht). He is co-founder and (was) editor-in-chief of the Facsimile Editions of Alamire Publishers (1984ff.), of the Yearbook of the Alamire Foundation (1994-2008), and of the series Monumenta Flandriae Musica (1996 ff.). He taught at the University of Leuven and teaches at Antwerp Royal Conservatory (1989-present), always striving to bring together musicology and performance practice.

RESEARCH QUESTION

Music, performance and context: the Collegiate Church Of Our Lady in Antwerp in a european and multidisciplinary perspective (c. 1352-1566)

Until now, research on music in the Collegiate Church of Our Lady in Antwerp has mainly focused on the 'Golden' sixteenth century, but not on the period before when its foundations were laid. Yet it was precisely then when composers of international renown like Ockeghem, Barbireau, and Obrecht flourished here. Close ties with the chapels of both the Burgundian-Habsburg court and the pope, its position of favour with the Habsburg monarchs, bustling commercial contacts throughout Europe, and donations to the church from wealthy citizens. The primary intention of this study is to arrive at a better understanding of the mechanisms underlying this rich music scene, and to place them in their urban, socio-cultural, and European contexts. This contextualization along with an interdisciplinary approach to the issue, provide a new and better explanation for the blossoming of this extraordinary musical culture. The objective is to improve the understanding of how Renaissance compositions were performed and heard, and permit better historical reconstructions of their acoustical and visual environments as well as the reception of this music by the faithfull.

Dr Aneta Slowik

Period: September, 2023 - June, 2024
Programme: French Institutes for Advanced Study (FIAS) PROGRAMME
Award: LE STUDIUM / FIAS Research Fellowship
Speciality: Migration/Education/Counselling Studies
Previously: University of Lower Silesia, Wroclaw - PL
Research institute: Research Team on Contexts and Education Actors (ÉRCAÉ), University of Orléans - Orléans
Host scientist: Prof. Philippe Bourdier

BIOGRAPHY

Dr Aneta Slowik defended her PhD thesis in 2011 and was appointed as associated professor at the University of Lower Silesia DSW in Wroclaw, Poland. She works in the field of migration and counceling studies. She is a member of the Scientific Board of «Harmattan» in the l`Histoire de vie network, and the Scientific Council of the Association of biography research and life history in educational sciences (ASHIVIF). Dr. Slowik has published two monographies focused on Polish immigrants in the UK and their transnational councelling networks. She received academic grants by DAAD and KAAD (Germany) and BGF (France).

RESEARCH QUESTION

Educational and cultural needs of Ukrainian refugee children in the Loiret department

This project was carried out at ÉRCAÉ EA 7493 at University of Orléans under the supervision of Prof. Philippe Bourdier and in collaboration with Dr. Véronique Francis. The project analyzed the educational needs, challenges, and lived experience of Ukrainian refugee children that moved to the Loiret department in France after the Russian invasion of Ukraine. The methods of biographical narrative analysis and participant observation were employed. Narrative interviews with Ukrainian children aged 6-12, teachers, school heads, and parents were conducted. An international conference focused on immigrants in the Loiret was organized. Dr Slowik's research project produced recommendations for practitioners, researchers, teachers, and school from the Loiret department working with Ukrainian refugee children. The joint project with Dr. Véronique Francis will be a springboard for planning subsequent collaborative research projects and continuing our fruitful and long-standing research collaboration.

Prof. Britta Thörle

Period: March, 2023 - July, 2023
Programme: ATHENA VISITING RESEARCHERS PROGRAMME
Award: LE STUDIUM / ATHENA Visiting Researcher
Speciality: Romance Studies/Applied Linguistics
Previously: University of Siegen - DE
Research institute: Laboratoire Ligérien de Linguistique (LLL) / University of Orléans, CNRS, University of Tours, Bibliothèque Nationale de France - Orléans
Host scientist: Dr Marie Skrovec

BIOGRAPHY

After completing her Ph.D. in French Linguistics at the University of Mannheim, Britta Thörle accepted a junior professorship in Kiel before being appointed Professor of Romance Studies/Applied Linguistics at the University of Siegen in 2011. Her research focus is spoken language and, in particular, the relationship between language and interaction in French and Spanish. In various projects she explores the development of interactional competence in learners of French and Spanish as foreign languages. She has been co-editor of two handbooks on language in organizations ("Sprache in Organisationen", 2018) and on languages for special purposes ("Manuel des langues de spécialité", 2016).

RESEARCH QUESTION

Attitudes and language use of international exchange students during their stay in Orléans

With the ESLO corpus (Enquêtes SocioLinguistiques à Orléans) the LLL holds one of the most important corpora of spoken French. Conceived as the «sound portrait of a city» through its inhabitants, ESLO portrays different social identities, their language use and attitudes, as well as the diversity of urban communication situations and everyday practices. In this project, the research questions and methodological tools of ESLO were extended to foreign exchange students who spend part of their studies in Orléans. The aim of the project was to find out how the students' perception of the city, its inhabitants and the language changes during the first 5-6 months of their stay and how their language use in oral interaction develops during this period. The latter question was examined by looking at the acquisition of discourse markers, i.e. "small words" such as bon, enfin, voilà, which fulfill a variety of conversational functions in oral interaction and whose mastery is considered a resource and an indicator of fluency and interactional competence. Didactic issues of learning and teaching DMs were therefore also a concern of the proposed project.

Dr Alessandro Turbil

Period: September, 2023 - August, 2024
Programme: SMART LOIRE VALLEY PROGRAMME
Award: LE STUDIUM Integration Fellowship
Speciality: French Studies - Digital Humanities
Previously: Free University of Berlin - DE
Research institute: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours - Tours
Host scientists: Prof. Silvère Menegaldo & Prof. Elena Pierazzo

BIOGRAPHY

After defending his joint Ph.D. thesis in Literature and Linguistics at the Universities of Turin and Sorbonne Nouvelle Paris 3 in 2018, Alessandro Turbil has worked as a temporary lecturer and researcher at various European universities (University of Tours, University of Turin, Freie Universität Berlin). He has recently been awarded a competitive fellowship from the Swiss National Science Foundation, starting in September 2024. His research interests include medieval and Renaissance French literature, lexicology, material bibliography and network analysis applied to early modern editorial and publishing practices.

RESEARCH QUESTION

Medieval lyric heritage in the French printing and bookselling network (1470-1600): a bibliographical and ontological preliminary study

By focusing on the transition from the Middle Ages to the Renaissance, the project aims to explore a kind of 'terra incognita' in literary studies, namely the role and extent of the reception of the medieval lyric heritage in the printed book market of the sixteenth century. This is done on the basis of a study of the actual circulation and reading of the medieval lyric authors whom the sixteenth-century public might have known not only by name but also by their works. This aim is achieved mainly by combining the study of catalogues and repertories with the study of the network of interactions between printers, booksellers and bibliophiles. The aim of the project is to enable the practical and theoretical study of bibliographical and philological tools for the development of new theories and approaches to the history of reading and literary criticism, based on material evidence and measurable analyses carried out using (social) network analysis methods.

LE STUDIUM RESEARCH CONSORTIUM

EARLY MEDIEVAL GLASS PRODUCTION, MULTI-ANALYTICAL TECHNIQUES, TO UNDERSTAND THE DAWN OF A TECHNICAL REVOLUTION

Dr Bernard Gratuze

LE STUDIUM Research Consortium Coordinator

BIOGRAPHY

Bernard Gratuze is director of research at the Institut de Recherche sur les Archéomatériaux (IRAMAT-CEB), CNRS/Université d'Orléans. He received his PhD and the HDR, at the Analytical Sciences Department of Orléans University. His current research interests include the development of analytical protocols using LA-ICP-MS for glass and lithic materials to study their production and trade from Protohistory to the Modern Period. He studies glass making processes and recipes since the beginning of the second millennium B.C. with particular interest for transition periods. He identified Indian's glass beads import in Western Europe during Merovingian period (5th-6th c.) and specific glass production from lead slag in Melle at the beginning of the 8th c. He is a member of French and International glass associations (AFAV & AIHV).

RESEARCH QUESTION

The aim of the project is to highlight the mutations that affected the North European glass craft following the changes in fluxes and to place these mutations in the broader context of the transitions that affected all fire-related crafts at the end of the Middle Ages in North-West Europe. By using wood and sand available in north-western Europe, glassmakers put an end to their dependency on primary glass imported from the Near East, and reoragnizedthe whole craft by locating primary and secondary productions in the same place. However, the mechanisms leading to this transformation are not yet clear. In order to enlighten this change, written documents are scarce and the archaeological sources are the main source of information. Thanks to archaeometry and to the analytical techniques that were recently developed, glass artefacts can now deliver many crucial data to retrace the socio-ecomonic history and to understand the evolution of techniques and knowledge. The Studium Consortium help us to link several small projects in order to produce uniform and more sustainable results.

Partners

Dr Nadine Schibille
is an expert in glass history, art history, analyses
> CNRS, IRAMAT-CEB - France

Dr Line Van Wersh
is an expert in glass analysis, glass history
> University of Liege, European Centre of Archaeometry - Belgium

Dr Grégoire Chêne
is an expert in ion beam methods for ancient material analyses
> University of Liege, European Centre of Archaeometry - Belgium

Dr David Strivay
is an expert in ion beam methods for ancient material analyses
> University of Liege, European Centre of Archaeometry - Belgium

Dr Olivier Vrielynck
is an expert in glass archaeology
> Walloon Heritage Agency, Public Service of Wallonia - Belgium

Dr Mette Langbroek
is an expert in Merovingian glass and bead studies
> Leiden University - Belgium

Dr Patrick Degryse
is an expert in isotopic analyses
> Leuven University - Belgium

Dr Alicia Van Ham-Meert
is an expert in isotopic analyses
> Leuven University - Belgium

2023 EVENTS PANORAMA

THEMES IN COLOR
- CONFERENCE
- PUBLIC LECTURE
- THURSDAY
- SUMMER SCHOOL
- CONSORTIUM
- WORKSHOP

JANUARY

Exploration of duality, geometry and entanglement
Prof. Sergey Solodukhin
Université de Tours
Faculté des Sciences et Techniques
09-13 January >

> 12 January
Jewish Translation in the Era of Epistemicide and Linguicide
Dr Cynthia Gabbay
Hôtel Dupanloup, Orléans

Early medieval glass production, multi-analytical techniques, to understand the dawn of a technical revolution
Dr Bernard Gratuze
Hôtel Dupanloup, Orléans
23-27 January >

FEBRUARY

Secondary glass productions in the early Middle Ages
Dr Bernard Gratuze, Dr Inès Pactat, Dr Gaspard Pagès, Dr Nadine Schibille & Dr Line Van Wersch
CNRS Orléans
> 26-27 January

> 02 February
Antibody fragments targeting ovarian receptors to control reproduction
Prof. Livio Casarini
IRBI, Tours

> 02 February
Insects as Model Physiological Organisms and Studying Fat Metabolism and Exocrine Glands with Stable Isotopes
Prof. Stephen Foster
IRBI, Tours

MARCH

> 07-09 February
Soil Mapping for a Sustainable Future
2nd joint Workshop of the IUSS Working Groups Digital Soil Mapping and Global Soil Map
Dr Dominique Arrouays & Anne Richer de Forges
Musée des Beaux Arts, Orléans

02 March >
Molten Salts Chemistry: History and Energy / Materials Applications
Dr Michal Korenko
Hôtel Dupanloup, Orléans

> 02 March
Dynamics in solid-state - towards more efficient solid-state electrolytes for energy conversion applications
Dr Alberto José Fernández Carrión
Hôtel Dupanloup, Orléans

02 March >
CubeSats for Heliophysics
Prof. Robert Marshall
Hôtel Dupanloup, Orléans

APRIL

06 April >
Coding the Codex *Digital Codicology and the Digitization of the Materiality of Books*
Dr Alberto Campagnolo
Faculté de Droit, Tours

> 06 April
Early Assessment and Rehabilitation for Neurodevelopmental Disabilities
Prof. Jill Heathcock
Faculté de Droit, Tours

> 17-19 April
Arc synaptic plasticity consortium
Dr Lucie Pélissier
Faculté de Médecine, Tours

MAY

> 19 April
International workshop on Digital Tools for Built Heritage diagnosis and monitoring (DT4BH)
Prof. Xavier Brunetaud & Prof. Sylvie Treuillet
Hôtel Dupanloup, Orléans

> 23-25 April
Ammonia for valuable clean energy systems
Prof. Christine Rousselle
Hôtel Dupanloup, Orléans

Un témoin muet et pourtant si éloquent : le manuscrit médiéval
Prof. Anne-Marie Turcan-Verkerk
Centre d'Études Supérieures de la Renaissance (CESR), Tours
10 May >

Novel approaches to Digital Codicology
Dr Alberto Campagnolo & Prof. Elena Pierazzo
Centre d'Études Supérieures de la Renaissance (CESR), Tours
10-12 May >

Alternative forms of historical writings
Prof. Maya Boutaghou
Hôtel Dupanloup , Orléans
04 May >

Attitudes and language use of international students during their stay in Orléans
Prof. Britta Thörle
Hôtel Dupanloup, Orléans
04 May >

JUNE

Leonardo Teacher (Maestro Leonardo)
Prof. Salvatore Magazù & Prof. Pascal Brioist
Château du Clos Lucé - Parc Leonardo da Vinci, Amboise
> 26-27 May

The Economics of Spectacle. Funding the Ephemeral Arts in Early Modern Europe
Dr Francesca Fantappiè & Prof. Philippe Canguilhem
Centre d'Études Supérieures de la Renaissance (CESR), Tours
> 08-10 June

12-14 June >
Technology-based multidisciplinary cooperation and its applications for improving well-being *TEMUCO 2023*
Dr Michel Haritopoulos, Dr Philippe Ravier & Dr Olivier Buttelli,
IUT de Chartres

Multidimensional bioelectric processing: from decomposition to complexity
Dr Philippe Ravier, Dr Olivier Buttelli, Dr Meryem Jabloun & Dr Karim Abed-Meraim
Hôtel Dupanloup, Orléans
> 14-16 June

> 20-21 June
International tutorials on Digital Tools for Built Heritage diagnosis and monitoring (DT4BH)
Dr Sylvie Treuillet & Prof. Xavier Brunetaud,
POLYTECH Orléans

JULY

29-30 June >
Spoken language corpora as a teaching-learning resource for French as a foreign language
Prof. Britta Thörle & Dr Marie Skrovec
Hôtel Dupanloup, Orléans

> 05-07 July
Chiral Matter: from quarks to quantum computers
Prof. Dmitri Kharzeev & Dr Maxim Chernodub
Hôtel de Ville, Tours

06 July >
Entomopathogenic fungi: the enemies of my enemies
Dr Patricia Silva Gôlo
Hôtel de Ville, Tours

06 July >
Potential of natural products in cosmetics: Sourcing, Analytical chemistry and Biological assays
Dr Mahenina Jaovita Manase
Hôtel de Ville, Tours

SEPTEMBER

07 September >
Housing issues and health among youth - a (pilot) case from Slovenia
Prof. Rudi Klanjšek
Hôtel Groslot, Orléans

13-14 September >
Brazil x France scientific partnership opportunities and alternative strategies for arthropod pest control
Dr Patricia Silva Gôlo & Dr Foteini Koutroumpa / Virtual meeting

Agir pour la conservation des papillons, c'est encore possible !
David Demergès
Muséum d'Orléans pour la Biodiversité et l'Environnement
27 Spetember >

H'allo Volcano ! : An interdisciplinary study on the atmospheric plume processing and impacts of Volcanic Halogen Emissions
Dr Tjarda Roberts
Hôtel Dupanloup, Orléans
09-13 October >

OCTOBER

> 09-10 October
Plant rediscovery with advanced tools for well-being applications
Dr Mahenina Jaovita Manase & Prof. Émilie Destandau
Hôtel Dupanloup, Orléans

05 October >
From The Stratosphere to the Rhizosphere: a Case Study in Environmental Isotope Forensics
Prof. Neil Sturchio
Hôtel Dupanloup, Orléans

Data Integration Engineering for boosting Digital Twins AI
Dr Félix Iglesias Vázquez
Hôtel Dupanloup, Orléans
> 05 October

Des matériaux pour l'avenir : Nouvelles (vitro-)céramiques
Dr Michael Pitcher & Dr Mathieu Allix
Hôtel Dupanloup, Orléans
> 04 October

> 04-06 October
New Inorganic Functional Oxides: Synthesis, Characterisation and Simulations
Dr Alberto José Fernández Carrión, Dr Michal Korenko, Dr Mathieu Allix & Dr Michael J. Pitcher
Hôtel Dupanloup, Orléans

> 25-29 September
Conservation, Ecology and Systematics of Lepidoptera in a changing world
The 23rd European Congress of Lepidopterology & 11th Forum Herbulot
Dr Carlos Lopez-Vaamonde
Hôtel Dupanloup / Musée des Beaux Arts, Orléans

2023
EVENTS PANORAMA

Processes that employ green technology to obtain extracts for use in functional foods, cosmetics and pharmaceuticals
Prof. Alessandra Lopes de Oliveira
Hôtel Dupanloup, Orléans
> 07 December

Early medieval glass production, multi-analytical techniques, to understand the dawn of a technical revolution
Dr Bernard Gratuze
Hôtel Dupanloup, Orléans
> 11-15 December

11-13 December >
Arc synaptic plasticity consortium
Dr Lucie Pélissier
Novotel, Tours

DECEMBER

> 07 December
Ancient Greek and non-Greek societies: an interaction seen through the coinage
Dr Albana Meta
Hôtel Dupanloup, Orléans

Politique de la monnaie et inflation dans l'Empire romain
Dr Gilles Bransbourg
Hôtel Dupanloup, Orléans
13 November >

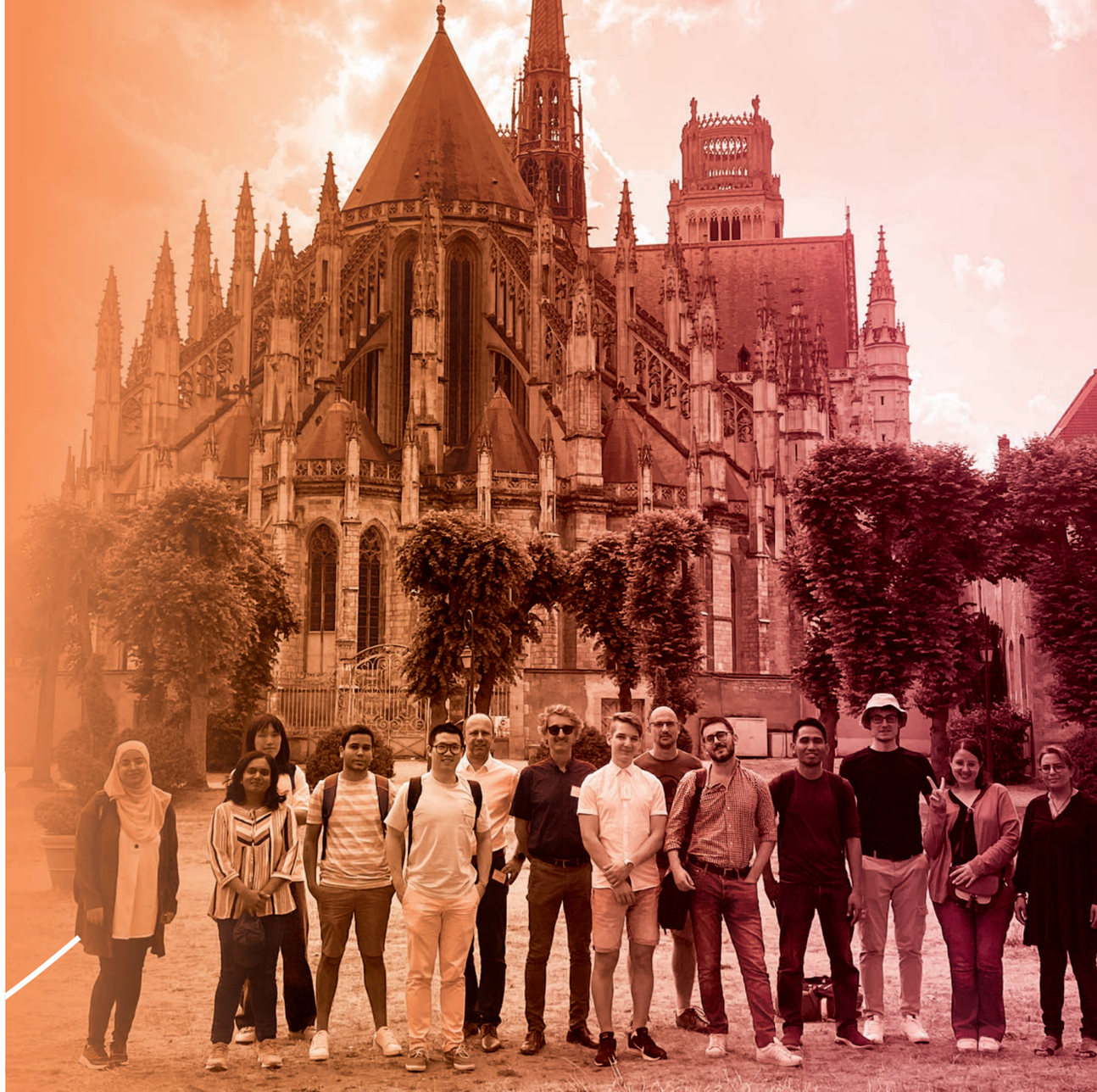
Bioproduction of commercially attractive molecules by plant cell culture
Prof. Bilal Haider Abbasi
Salle Saint Libert, Tours
02 November >

> 02 November
Avignon, musical identity, and alternative ways of understanding Renaissance music history
Dr Alexander Robinson
Salle Saint Libert, Tours

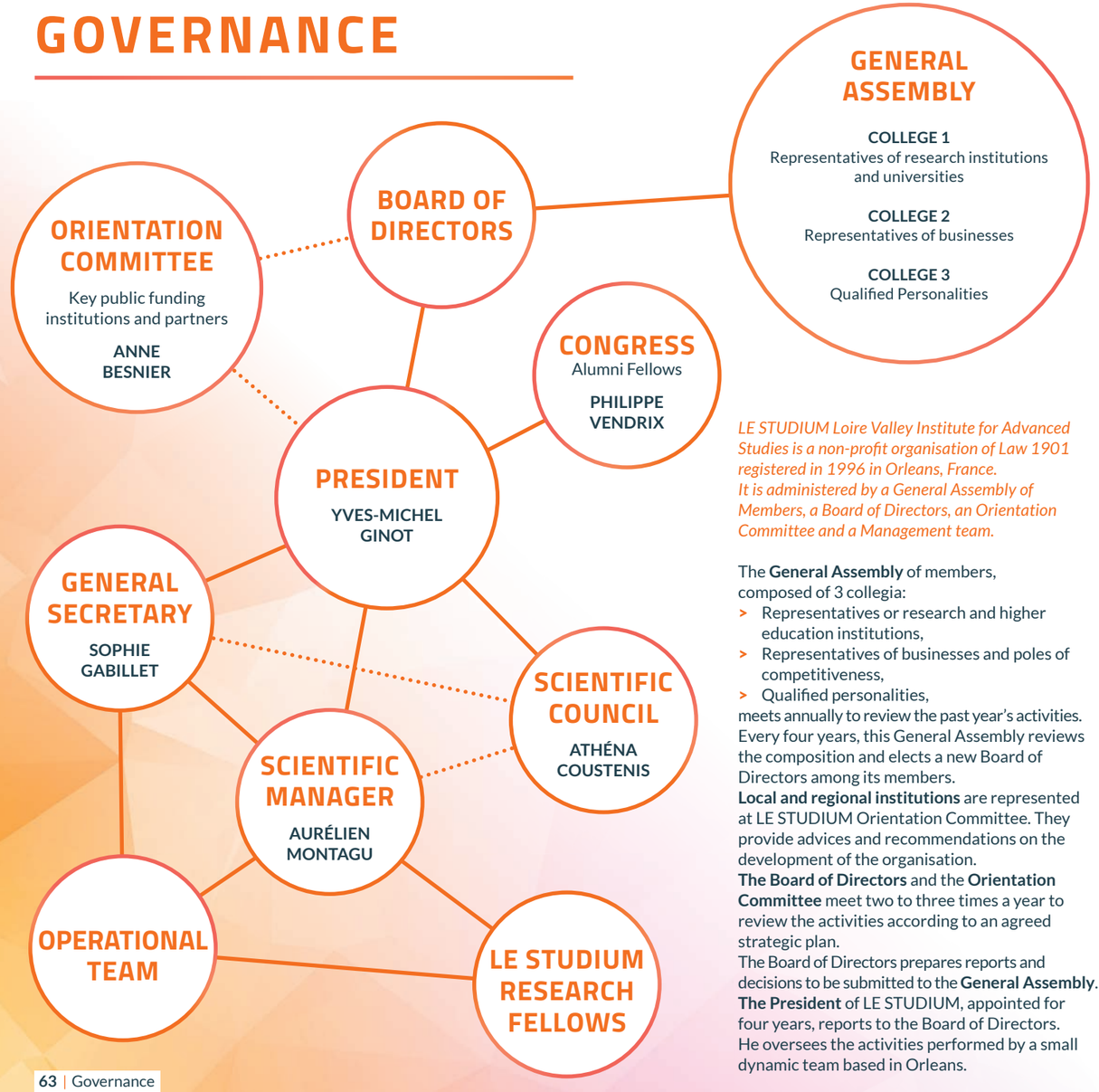
NOVEMBER

THEMES IN COLOR

- CONFERENCE
- PUBLIC LECTURE
- THURSDAY
- SUMMER SCHOOL
- CONSORTIUM
- WORKSHOP



GOVERNANCE



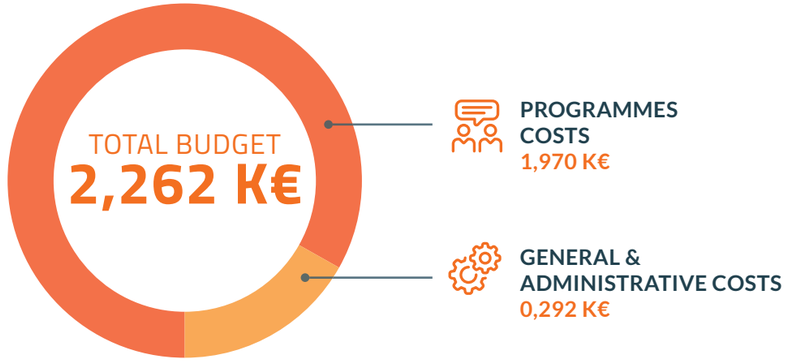
LE STUDIUM Loire Valley Institute for Advanced Studies is a non-profit organisation of Law 1901 registered in 1996 in Orleans, France.
It is administered by a General Assembly of Members, a Board of Directors, an Orientation Committee and a Management team.

The **General Assembly** of members, composed of 3 collegia:

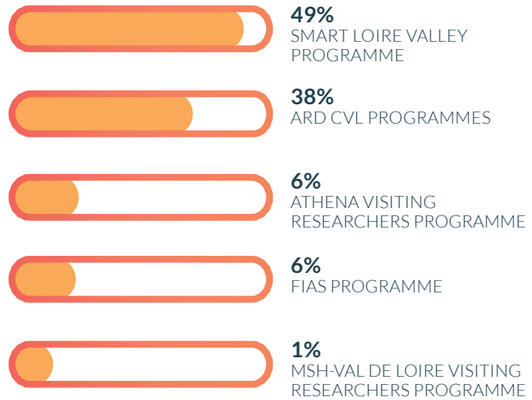
- Representatives or research and higher education institutions,
- Representatives of businesses and poles of competitiveness,
- Qualified personalities,

meets annually to review the past year's activities. Every four years, this General Assembly reviews the composition and elects a new Board of Directors among its members.
Local and regional institutions are represented at LE STUDIUM Orientation Committee. They provide advices and recommendations on the development of the organisation.
The Board of Directors and the **Orientation Committee** meet two to three times a year to review the activities according to an agreed strategic plan.
The Board of Directors prepares reports and decisions to be submitted to the **General Assembly**.
The President of LE STUDIUM, appointed for four years, reports to the Board of Directors.
He oversees the activities performed by a small dynamic team based in Orleans.

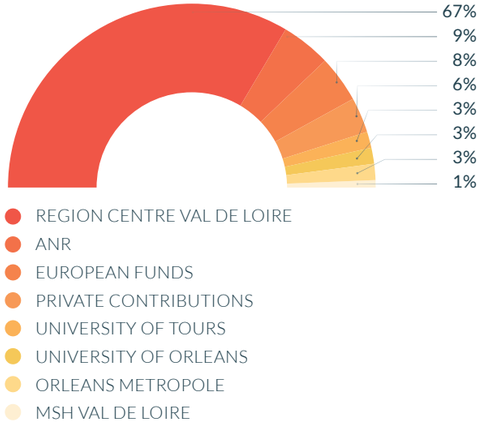
2023 BUDGET & FINANCIAL DATA



2023 PROGRAMMES REPARTITION



2023 FINANCIAL RESOURCES



SCIENTIFIC COUNCIL 2023

LE STUDIUM Scientific Council evaluates candidacies, establishes the final ranking of applications, and recommends Fellowship, Professorship, Visiting Artist, Visiting Researcher and Consortium awards. It is composed of independent external senior scientists who gather twice a year to analyse applications and the scientific reviews provided by a pool of a thousand experts. They finalise the selections of the Smart Loire Valley Programme and the French, the Institutes for Advanced Study (FIAS) Programme, and the MSH-Val de Loire Programme. The Scientific Council members are also regularly consulted for their expertise to perform independent evaluations in the course of required recruitments occurring across the Ambition Research Development CVL programmes and the ATHENA Visiting Researchers Programme.
For the calls for applications 2023, LE STUDIUM Scientific Council members were:

Athéna Coustenis and Dominique Langevin

Chairs

ATHÉNA COUSTENIS
Chair, Astrophysicist, Research Director-CNRS, at LESIA, Paris Observatory, Meudon, FR

DOMINIQUE LANGEVIN
Outgoing Chair, Research Director in physical chemistry, Centre National de la Recherche Scientifique, Laboratory of Solid State Physics at the University of Paris-Saclay, FR

Members

DOMINIQUE ALLART
Professor, Director of Service d'Histoire et Technologie des Arts plastiques (Temps modernes), Université de Liège, BE

JOSEP-MARIA ARAUZO-CAROD
Professor, Director of the Center for Research in Economics and Sustainability, University of Rovira i Virgili, SP

LAURA BACIOU
Professor, Biophysics, Research Director-CNRS, at Laboratory of Physical Chemistry at the University of Paris-Saclay, FR

DAMIAN BAILEY
Professor of Physiology and Biochemistry, Director of the Neurovascular Research Laboratory, University of South Wales, UK

GORDON CAMPBELL
Fellow of the British Academy, Professor in Renaissance and seventeenth century studies, University of Leicester, UK

BRUNO CHAUDRET
CNRS Research Director in organometallic chemistry, LPCNO University of Toulouse INSA-CNRS-UPS, FR

MARK GOERBIG
Professor Theoretical Physics, CNRS Research Director, Laboratory of Solid State Physics at the University of Paris-Saclay, FR

WIESLAW GRUSZECKI
Professor in Biophysics, Maria Curie-Sklodowska University in Lublin, PL

OLGA GUERRERO-PEREZ
Professor, Environmental chemistry & Chemical Engineering, Higher Technical School of Industrial Engineering, University of Malaga, SP

VALÉRIE HAYAERT
Doctor in Studies Early Modern Legal History, Law and Literature, Emblems Studies, Research Fellow, School of Law, University of Warwick, UK

AYLIN CARLA HANYALOGLU
Professor in Molecular Biology, Imperial College London, Faculty of Medicine, UK

ROSANA LÓPEZ RODRÍGUEZ
Associate Professor in Plant Physiology, Universidad Politécnica de Madrid, SP

JEAN-CLAUDE LECRON
Professor, Biochemistry & Immunology, University of Poitiers, Hospital practitioner at the University Hospital of Poitiers, FR

MIRELA MOLDOVAN
Professor in Dermatology & Cosmetology at University of Medicine and Pharmacy, Cluj Napoca, RO

ALAIN PAVE
ProfessorBiometrics and Evolutionary Biology, Lyon. Member of the Academy of Technologies, FR

AGNIESZKA PARTYKA
Professor in Reproduction and Clinic of Farm Animals, Wroclaw University of Environmental and Life Sciences, PL

LAURENT TISSOT
Professor, Contemporary History, University of Neuchâtel, CH

EMMANUEL TRELAT
Professor, Mathematics, Sorbonne University, Director of the Jacques-Louis Lions laboratory, FR

BRIGITTE VALLÉE
Research Director, Computer Sciences and Mathematics, CNRS and University of Caen, FR

LAURENT WARLOUZET
Professor, History of European cooperation and European Union, Paris Sorbonne-Université, FR

RALPH WATZEL
Professor, Geology and Geophysics, President of the Federal Institute for Geosciences and Natural Resources (BGR), Hannover, DE

LE STUDIUM TEAM

Sophie Gabillet
General Secretary

Aurélien Montagu
Scientific Manager

Maurine Villiers
Communication & Events Manager

Marie-Frédérique Pellerin
Finance & Administration Manager

Federica Vena
Research Projects Officer

Romane Lasalle
Junior Events & Communication Assistant

Guénaëlle Gallé
Research Project Assistant

Margaux Birre
Research Management Intern

Dylan Wrede
Incoming Researchers Officer, University of Orléans

Clément Pinturier
Incoming Researchers Officer, University of Tours

LIST OF RESEARCHERS IN RESIDENCE IN 2023

SMART LOIRE VALLEY PROGRAMME

Dr Anil Annamneedi
Understanding cellular and molecular basis of autism spectrum disorders
March 2022 - October 2022
In residence at: Physiology of Reproduction and Behaviour (PRC) / Centre INRAE Val de Loire, CNRS, University of Tours, IFCE
Host scientist: Dr Lucie Pellissier

Dr Mohammed Ayoub
Investigating the Effects of Steroid Hormones on G Protein-Coupled Receptors in Vitro
June 2023 - August 2023
In residence at: Physiology of Reproduction and Behaviour (PRC) / Centre INRAE Val de Loire, CNRS, University of Tours, IFCE
Host scientist: Dr Frédéric Jean-Alphonse

Dr Abhishek Baghela
Yeast cell factory for mRNA bioproduction
October 2022 - May 2023
In residence at: Molecular Biophysics Center (CBM) / CNRS
Host scientist: Prof. Chantal Pichon

Prof. Francis Bambico
Non-Invasive Therapeutic Neuromodulation, Strategies for Psycho-Affective Disorders
December 2023 - December 2024
In residence at: Imaging and Brain laboratory (iBrain) / INSERM, University of Tours
Host scientist: Prof. Catherine Belzung

Prof. Maya Boutaghou
Interdisciplinary forms of historical writings in colonial and postcolonial contexts
September 2022 - June 2023
In residence at: POuvoirs, LEttres, Normes (POLEN) / University of Orléans
Host scientist: Prof. Aude Déruelle

Dr Alberto Campagnolo
From features to data points and pixels: investigations into the transmediation of the artefactual nature of books in the digital
May 2022 - April 2023
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Elena Pierazzo

Dr David Crottès
Investigating the heterogenity of the crosstalk between cancer cells and the tumor micro-environment using calcium profiling
March 2022 - March 2023
In residence at: Nutrition, Growth and Cancer / INSERM, University of Tours
Host scientist: Prof. Christophe Vandier

Dr Francesca Fantappiè
Financing Festivals, Music and Theatre: Real Expenses and Fictional Expenditures in France between the Sixteenth and Seventeenth Centuries
October 2021 - August 2023
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Philippe Canguilhem

Dr Alberto José Fernández Carrión
Glass ceramization processing for developing solid-state transparent sodium ion electrolytes
September 2022 - March 2023
In residence at: Extreme Conditions and Materials: High Temperature and Irradiation (CEMHTI) / CNRS
Host scientist: Dr Michael J. Pitcher

Prof. Stephen Foster
Stable isotope methods for insect physiology
September 2022 - September 2023
In residence at: Insect Biology Research Institute (IRBI), University of Tours / CNRS
Host scientist: Prof. Jérôme Casas

Prof. Alina Goncharova
Inheritance problems in the zone of anti-terrorist operations and in the occupied territories
March 2022 – December 2023
In residence at: Institute of Interdisciplinary Law Research (IRJI) / University of Tours
Host scientist: Prof. Fabienne Labelle

Prof. Jill Heathcock
Adding movement analysis to detect neurodevelopmental impairments in infants of obese mothers
May 2023 - August 2023
In residence at: Imaging and Brain laboratory (iBrain) / INSERM, University of Tours
Host scientists: Prof. Frédérique Bonnet-Brilhault & Prof. Delphine Mitanchez

Dr Thais Hernandez Campillo
Learning ecologies based on content curation
September 2023 - December 2023
In residence at: Research Team on Contexts and Education Actors (ÉRCAÉ) / University of Orléans
Host scientist: Dr Natalia Pino

Prof. Yun Hee Jang
Molecular modeling of stretchable electronics
September 2022 - January 2023
In residence at: Research Group for Materials, Microelectronics, Acoustics and Nanotechnologies (GREMAN) / CNRS, INSA CVL, University of Tours
Host scientist: Prof. Yves Lansac

Dr Yu Kimura
Nanoparticle contrast agents: synthesis and characterization
November 2023 – April 2024
In residence at: Center for Molecular Biophysics (CBM) / CNRS
Host scientist: Prof. Eva Jakab Toth

Dr Michal Korenko
Molten Salt Synthesis and Characterization of (Oxo)-(Fluoro)-Aluminates for Electrochemical and Electronic/Photonic Applications
September 2022 - August 2023
In residence at: Extreme Conditions and Materials: High Temperature and Irradiation (CEMHTI) / CNRS
Host scientist: Dr Mathieu Allix

Dr Sungyup Lee
A Study on the Translation Strategies of Korean - Picture Books published in France
December 2023 - February 2024
In residence at: InTRu (Interactions, Transferts, Ruptures artistiques et culturelles) / University of Tours
Host scientist: Dr Cécile Boulaire

Prof. Robert Marshall
Understanding the Radiation Environment in Near-Earth Space and its Impact on the Earth's Atmosphere with Current and Future Space Missions
January 2023 - July 2023
In residence at: Laboratory of Physics and Chemistry of Environment and Space (LPC2E) / CNRS, University of Orléans, CNES
Host scientist: Dr Jean-Louis Pinçon

Prof. Tetyana Milojevic
«BIOMAMA» Biogenicity of Martian Materials: critical assessment of biosignatures based on chemolithoautotrophic interactions
May 2022 – April 2023
In residence at : Molecular Biophysics Center (CBM) / CNRS
Host scientist: Prof. Frances Westall

Dr Oleksii Naumenko
ANR ENVAHY project
February 2023 - January 2024
In residence at: French Geological Survey (BRGM)
Host scientist: Dr Kloppmann Wolfram

Dr Uliana Naumenko
Materi-A-Net Project
February 2023 - January 2024
In residence at: French Geological Survey (BRGM)
Host scientist: Dr Kloppmann Wolfram

Dr Anton Nizovtsev
Computational study of f-element containing macrocyclic compounds
October 2023 - December 2023
In residence at: Center for Molecular Biophysics (CBM) / CNRS
Host scientist: Dr Svetlana Eliseeva

Dr Rock Ouimet
Application of the critical biomass harvesting concept for improving the diagnosis of soil sensitivity to forest biomass harvest
April 2022 - April 2023
In residence at: INRAe - UR Ecosystèmes Forestiers (EFNO), Nogent sur Vernisson
Host scientist: Dr Nathalie Korboulewsky

Prof. Vincent Pecoraro
Lanthanide Based Metallacrowns as Near-Infrared Emitting Biological Probes
May 2023 - August 2023
In residence at: Molecular Biophysics Center (CBM) / CNRS
Host scientist: Prof. Stéphane Petoud

Dr Alexander Robinson
Music, Religion and Civic Identity in Renaissance Avignon (c.1500–1630
October 2022 - September 2024
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Philippe Vendrix

Prof. Eugeen Schreurs
Music, performance and context: the collegiate church of our lasy in Antwerp in a European and multidisciplinary perspective (C. 1352-1566)
January 2023 – May 2023
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Philippe Vendrix

Dr Patricia Silva Gôlo
Exploiting the poultry red mite chemosensation for improvement of its control with entomopathogenic fungi
February 2023 - July 2023
In residence at: Infectiology and Public Health (ISP) / Centre INRAE Val-de Loire, University of Tours
Host scientist: Dr Foteini Koutroumpa

Prof. Neil Sturchio
Groundwater contamination in France: A legacy of World War I
September 2023 - November 2023
In residence at: French Geological Survey (BRGM)
Host scientist: Dr Patrick Ollivier

Dr Alessandro Turbil
Singers of Old Love: The survival of medieval lyric heritage in the French Renaissance. A bibliographical and philological study
September 2023 - August 2024
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Silvère Menegaldo & Prof. Elena Pierazzo

Prof. Juan César Vilardi
Adaptative strategies of forest trees to climate changes: microevolution and plasticity
September 2023 - November 2023
In residence at: Integrated Biology for the Development of Tree and Forest Diversity» (BioForA), Centre INRAE Val-de-Loire / ONF
Host scientist: Dr Philippe Rozenberg

Prof. Beatriz Ofelia Vilardi-Saidman
Adaptative strategies of forest trees to climate changes: microevolution and plasticity
September 2023 – November 2023
In residence at: BioForA, Centre INRAE Val-de-Loire / ONF
Host scientist : Dr Philippe Rozenberg

Prof. Georg Von Samson-Himmelstjerna
Drug efflux-mediated processes of anthelmintic resistance in ascarids
July 2023 - October 2023
In residence at: Infectiology and Public Health (ISP) / Centre INRAE Val de Loire, University of Tours
Host scientist: Dr Cédric Neveu

ATHENA VISITING RESEARCHERS PROGRAMME

Prof. Marko Hölb
Privacy & Integrity in the Internet of Medical Things
May 2023 - August 2023
In residence at: System and Data Security (SDS), Orléans Computer Science Laboratory (LIFO) , INSA Centre Val de Loire, University of Orléans
Host scientist: Prof. Patrice Clemente & Prof. Cédric Eichler

Prof. Rudi Klanjšek
Exploring relationships between housing and health among youth in the context of adverse structural conditions – an explorative
May 2023 - September 2023
In residence at: RÉceptions et MÉdiations de LIttératures et de Cultures Étrangères et comparées (RÉMÉLICE) / University of Orléans
Host scientist : Prof. Karin Fischer

Prof. Magdalena Mizerska-Kowalska
Design of ERK2 inhibitors for cancer therapy
August 2023 – September 2023
In residence at: Institute of Organic and Analytical Chemistry (ICOA) / CNRS, University of Orléans
Host scientist: Prof. Pascal Bonnet

Prof. Dieter Spreen
A Domain-theoretic Model Construction for Coquand/Huet's Calculus of Construction
April 2023 - September 2023
In residence at: Fundamental Computer Science Laboratory of Orléans (LIFO) / University of Orléans, INSA Centre-Val de Loire
Host scientist: Prof. Jérôme Durand-Lose

Dr Magdalena Suchora
Synergy of palaeoecological and geochemical approach in tracking selected anthropogenic pollutions and their ecosystem response in sedimentary archive
August 2023 – September 2023
In residence at: Institut des Sciences de la Terre d'Orléans (ISTO) / CNRS, University of Orléans
Host scientist: Dr Anaëlle Simonneau

Prof. Britta Thörle
Attitudes and language use of international exchange students during their stay in Orléans: the example of discourse markers in
March 2023 - July 2023
In residence at: Laboratoire Ligérien de Linguistique (LLL) / University of Orléans, CNRS, University of Tours, Bibliothèque Nationale de France
Host scientist: Dr Marie Skrovec

ARD CVL BIOPHARMACEUTICALS PROGRAMME

Prof. Livio Casarini
Antibody fragments targeting ovarian GPCRs to control reproduction
November 2022 – November 2023
In residence at: Physiology of Reproduction and Behaviour (PRC) / Centre INRAE Val de Loire, CNRS, University of Tours, IFCE
Host scientist: Dr Eric Reiter

Prof. Remo Russo
Autologous transplantation of myeloid cells reprogrammed ex-vivo by STING-Dependent Adjuvants (STAVs) as an alternative cell therapy for the treatment of Idiopathic Pulmonary Fibrosis
October 2023 - September 2024
In residence at: Immuno - Neuro Modulation (INEM) / CNRS, University of Orléans
Host scientist: Dr Valérie Quesniaux

ARD CVL COSMETOSCIENCES PROGRAMME

Dr Bilal Haider Abbasi
Exploration of the potential of plant cell cultures of different species as a source of cosmetic ingredients
May 2023 - December 2023
In residence at: Biomolecule and Plant Biotechnology (BBV) /University of Tours
Host scientist: Prof. Nathalie Guivarc'h

Prof. Alessandra Lopes de Oliveira
Identification of active compounds in insect oils and in vegetable oils from Brazilian endemic plants
August 2023 - December 2023
In residence at: Institute of Organic and Analytical Chemistry (ICOA) / CNRS, University of Orléans
Host scientist: Prof. Caroline West

Dr Mahenina Jaovita Manase
Biosourced sunscreen ingredient from coptosperma Madagascariense inspired by Malagasy traditional use
February 2023 - July 2023
In residence at: Institute of Organic and Analytical Chemistry (ICOA) / CNRS, University of Orléans
Host scientist: Prof. Emilie Destandau

ARD CVL JUNON PROGRAMME

Dr Félix Iglesias Vázquez
Development of digital twin software prototypes and validation of communication protocols
August 2023 – December 2023
In residence at: PRISME Laboratory / University of Orléans, INSA CVL
Host scientist: Dr Frédéric Ros

FRENCH INSTITUTES FOR ADVANCED STUDY (FIAS) PROGRAMME

Dr Stefan Heßbrüggen-Walter
The Afterlife of a Renaissance Genre: A Census of Dissertations in French Libraries 1500-1800
September 2023 – June 2024
In residence at: Centre for Advanced Studies in the Renaissance (CESR) / CNRS, University of Tours
Host scientist: Prof. Fosca Mariani Zini & Prof. Elena Pierrazo

Dr Albana Meta
The coinage between Greeks and non-Greeks: the case of the Illyrians compared to the Thracians and the Celts
September 2023 – June 2024
In residence at: Archeomaterials Research Institute, Ernest-Babelon Center (IRAMAT-CEB) - CNRS / University of Orléans
Host scientist: Prof. Sylvia Nieto-Pelletier

Dr Aneta Slowik
Educational and cultural needs of Ukrainian refugee children in the Loiret department: Their lived experiences and biographical stories
September 2023 - June 2024
In residence at: Research Team on Contexts and Education Actors (ÉRCAÉ), University of Orléans
Host scientist: Prof. Philippe Bourdier

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Centre International Universitaire
pour la Recherche
Hôtel Dupanloup - 1, rue Dupanloup
45000 Orléans - France

CONTACTS

Sophie Gabillet
General Secretary
+33 2 38 21 14 81
sophie.gabillet@lestudium-ias.fr

Dr Aurélien Montagu
Scientific Manager
+33 2 38 21 14 86
aurelien.montagu@lestudium-ias.fr

M. Yves-Michel Ginot
President

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