e2s UPPA

energy environment solutions

Progress Report 2020

INVESTIR L'AVENIR

I-SITE : ANR-16-IDEX-0002

INRAE la science pour la vie, l'humain, la terre

UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR

Inria

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The convergence between academia and socioeconomic actors

Executive director

FOREWORD

2020 is the fourth year of activity for the E2S I-Site project.

Steering the transformation of the higher education, research and innovation system in our territory, symbolized by the "E2S UPPA" brand, the E2S initiative of excellence continues to demonstrate a strong momentum, which is based on three pillars:

Its Academic strength: most bibliometric indicators increased in 2020: + 4.4% in publications and a 7% increase in the impact factor after two years. The pooling of Sociology, Geography, Law and Economics researchers within a new joint unit with the CNRS will become reality in 2021, yet E2S has been supporting it starting right from 2020, with the creation of a junior chair. The academic consortium is also becoming more and more attractive, both in France and in Europe, thanks to the UPPA Tech joint instrumental centre. This progression is based on training too: the number of foreign students registered in 2020, in Masters' degrees, is twice that of 2019.

The strength of partnerships, innovation and research dissemination: About 40 business partners support the I-Site. The involvement of researchers from the private sector in our projects has steadily been growing since 2017 (+ 300%) and this synergy is reflected in the growth of our resources. In 2020, the number of students with the national status of "student entrepreneurs" is close to 100 and the UPPA has been awarded the label of excellence within the framework of the "Entrepreneurial Spirit" national call for projects.

An increasingly responsive university: restructured into three colleges since 2018, UPPA obtained the HRS4R label in 2020. The E2S UPPA brand and the communication around this very same brand, which carries the values of our initiative in the region, have both been redesigned. The challenge is to increase visibility and strengthen the feeling of belonging – both internally and externally – and also to highlight the societal impact of all those partnerships.

Taking stock of 2020 though cannot be done without mentioning the effects of the health crisis. Measures have been implemented to support all the actors of the project. Distance education has systematically been deployed, thus preserving the strong growth observed since 2018 in the number of international Master students. We passed this test brilliantly and for that, we must first of all thank everyone - at UPPA and within the E2S consortium - for the fantastic work undertaken.

— Gilles Pijaudier-Cabot
Executive director

Research

HUBS

OBJECTIVE

The hubs are project-teams created on themes emblematic of research excellence within E2S. They are accredited on the recommendation of the E2S external scientific council. Placed in the hands of the most creative high-level researchers, the hubs are like "commandos" dedicated to a focused research project and intended to affirm E2S' leadership in the fields of energy and the environment.

The hubs are multidisciplinary and one of them (Newpores) is distinguished by its international dimension: it brings together researchers from UPPA and an American university, Northwestern University, to address issues of great importance: the safety conditions of CO2 storage, the sustainability of civil engineering infrastructures, or the design of new materials for hydrogen storage.

INDICATORS

Hubs funded since obtaining the I-Site label: 4
Including, in 2020: 1

Duration: 5 years

Environment:
6 lecturer-researchers or researchers,
6 PhD fellowships (duration 3 years)
20 post-doctoral fellowships (duration 1 year)

Operating budget: 500K €

LEVERAGE / KEY EVENTS

Among the four hubs created between 2019 and 2021, one is the result of a partnership with Arkema and SAFT. Some 50 researchers, doctoral students, post-doctoral fellows, engineers and technicians have been given five years to work together to design a prototype battery of the future using solid electrolyte technology.

Interview
2020 edition

EnSulTe

Laurent BILLON
& Louis DE FONTENNELLE

Sea, Text & Sun : EnSulTe (bio-inspired Energy Sustainable and Independent Territories

The Sea, Text and Sun: EnSulTe Hub aims to define by 2030 whether artificial photosynthesis technology can make it possible to envisage energy independence for the inhabitants/stakeholders of a territory. It brings together scientific, technological and societal visions: the leaves of a tree capture the sun's energy to produce "fuel" in the form of sugars for the tree's life and growth.

They are replaced here by buildings connected by a network mimicking the tree's arborescence. These facilities would store solar energy in molecular form (hydrogen) to be used on demand when needed by fuel cells producing electricity, but whose excess can also be shared. This new paradigm raises questions of law, social acceptability and economic relevance.

Research

CHAIR WITH PARTNERSHIPS

OBJECTIVE

These chairs are directed towards well-recognised mid-career scientists, typically with an experience of 5-15 years after their Ph.D.

Faculty members of E2S UPPA can apply, but new faculty members can be recruited too. In this case, they are offered a five-year tenure track appointment. Senior chairs should involve public or private partnerships allowing for shared supports with E2S UPPA.

INDICATORS

9 lancées depuis l'obtention du label
dont, 3 chaires partenariales lancées en 2020

Durée 5 ans

Environnement :
1 enseignant chercheur ou
1 chercheur contractuel ou titulaire
Au moins 3 doctorants (durée 3 ans)
2 post-doctorants (durée 1 an)

Budget de fonctionnement de 300K€ en moyenne

Financement : collectivités, industriels ou mixtes

Interview

ORIGAMI chair
2020 edition

Anne BATTANI
Lecturer-researcher,
STEE College, LFCR

The ORIGAMI Chair is a partnership between E2S-UPPA and TOTAL. The scientific programme includes an important experimental part, with the setting up a state-of-the-art laboratory for the analysis of noble gases in fluids. These tracers - chemically inert - are powerful tools for determining the origin of fluids and the physical processes responsible for their migration and/or storage. The partnership between E2S and TOTAL allows us to share scientific knowledge from different communities, i.e. thermodynamics, geochemistry, geology, geophysics.
The research projects are carried out through doctoral and post-doctoral studies. They focus on the study of petroleum fluids and renewable energy, the role of water as a fluid transfer agent, migration processes and the role of fluids in the seismic cycle.

Financial sponsors: E2S, TOTAL

HPC-Waves chair

Volker ROEBER
Lecturer-researcher,
STEE College, SIAME

HPC-Waves chair: High-performance computing for solutions of coastal wave processes

The chair position has provided me with a unique opportunity to pursue my academic goals – both with respect to my research interests and also career-wise. As a coastal engineer I am covering both theory and applications of waves in the nearshore area. Due to the availability of 3 PhD and 1 postdoc positions, I was able to quickly build up a team and productively carry out projects. This has helped me to secure external funding from the European Union and establish a scientific partnership with a private consulting company. The partnership is an ideal extension of the academic work performed in my group and together with the recently founded M2 Master program “Computations in Coastal Engineering”, of which I will be the coordinator from fall 2021 on, it provides graduated students with a valuable option for employment. The E2S effort therefore strengthens the country’s capability to adapt to the emerging risks from climate change through research incentives and subsequent entrepreneurship.

Financial sponsors:
- CAPB - Communauté d’Agglomération Pays Basque
- RNA - Région Nouvelle Aquitaine
- ANR – Agence Nationale de la Recherche
- Rivage Pro Tech / SUEZ – Partenaire scientifique

Research
SCIENTIFIC CHALLENGES

OBJECTIVE

The objective this call is to support the emergence of new scientific topics or focus on scientific bottlenecks, from the core disciplines of E2S which covers the fields of the environment, energy and related societal issues.

The call invites a team of 3 to 4 researchers to propose innovative research projects in order to explore new breaking topics or overcome scientific and technological bottlenecks, to promote interdisciplinary collaboration and to disseminate this knowledge.

LEVERAGE / KEY EVENTS

This year the Scientific challenges call for project confirmed its role as initiator of research topics. A specific highlight was also put on the development of multi-laboratory projects - within the consortium, associating science and technology with the human sciences - as well as on the development of partnerships with other universities and research structures (in particular the Michel Serre Institute, LARB), both in France and internationally (BioCAD). Two of these projects involve partnerships, emphasizing that the innovation dynamic is in no way hampered but, on the contrary, supported by public actors as well as private partners.

INDICATORS

Projects funded since obtaining the I-Site label: 10, including 6 with partnerships

Projects funded in 2020:

4 projects, including one (Asturia) which was initially accepted in 2019 but could only be finalized in 2020 - given the development time of the partnership (3 projects are hosted by the STEE college and one by the EEI college)

Duration: 3 years

Budget

- Involves 3 lecturer-researchers or researchers, associated with 2 PhD students and 3 postdoctoral fellows (duration one year),
- includes an operating costs and / or investment budget of less than 60k€

Laureates in 2020:

LARB: This project aims to lay the foundations for a law on the adjustment of resources in relation to basic social and economic needs - Led by F. Riem, Lascaux Center on Transitions and CDRE, in collaboration with the Michel Serre Institute.

Captain Ad Hoc: This project aims to develop innovative methods for the detection (both in real time and in situ) of the emergence of new contaminants, on the basis of newly developed electrodes marked by contaminants' specific biomolecules. Partnership with the CAPBP and Bertin Technologie. Led by C Parrat, IPREM.

BioCAD: Using biogas generation processes, BioCAD aims to demonstrate that the carbon derived by pyrolysis from the residues of anaerobic digestion of biomass has added value as a material for the adsorption of harmful gases, as odorants associated with these green energy generation processes. Led by C Hort, LATEP, in collaboration with the LFCR (D. Bessières), Passages (S. Chailleux), IS2M at the University of Haute Alsace (Mulhouse), the fishing engineering department of the University Autonomous of Baja California Sur, as well as the Veolia company.

Interview

RODAM
2020 edition

Marc DAMBRINE
France, Professor

In the RODAM project, we aim, with the partnership of Safran Helicopter Engines, to develop new optimal design algorithms, both robust and adapted to the constraints of metal printing, with the aim of producing mechanical mechanisms.

This year we have worked in three main directions: taking into account the effects of thin coatings on the design of structures, the influence of uncertainties on the thermal conditions of use of the part and the design of lattices allowing to reach spatially variable mechanical properties (density and Hooke's tensor) using a single basic material. In this last inverse homogenization problem, there is no uniqueness of the design, we have in particular developed an algorithm allowing to obtain a design that is also robust to manufacturing uncertainties: the offset of the metal printer is in that context often fully utilized.

Sponsors: Safran Helicopter Engines

CHICkPEA

Hélène BARUCQ
Research Director, Inria, MAKUTU project team

CHaracterIzation of Conducting Poro-elastic media using Experimental and advanced numericAl

Seismic imaging, used to probe the subsurface, is based on the analysis of wave fields measured on the surface. This analysis uses complex algorithms running on high-performance computers. Applications such as geothermal energy or CO2 storage require a very precise knowledge of the subsurface. The objective of this project is to develop an experimental and numerical environment on the use of seismo-electric effects to improve seismic imaging.

The CHICkPEA project gathers mathematicians and geophysicists around the same question: can we improve the characterization of conducting porous media by taking into account seismo-electric effects? To answer this question, we have developed an experimental laboratory protocol assisted by an advanced computational software developed in a HPC environment. A new research group at the interface of applied mathematics and laboratory geophysics has been created, with an original approach where experimental measurements are assisted by numerical measurements, in order to validate an experiment or a simulation. Together, we have advanced our knowledge and today, we wish to continue this adventure. The CHICkPEA project will continue its path by participating in a European project selected by the GEOTHERMICA program and launched in January 2021.

From left to right and starting from the top:

Julien Diaz, DR Inria ; Daniel Brito, PR, UPPA ; Rose-Cloé Meyer, Doctorante E2S UPPA ; Victor Martins-Gomes, Doctorant E2S UPPA ; Hélène Barucq, DR Inria ; Ha Pham, CR Inria

Research

SEED FUNDING FOR PARTNERSHIP INITIATIVE

OBJECTIVE

The Seed Funding call aims at promoting emerging industrial partnerships within E2S UPPA consortium, by supporting intermediate scale projects (typically doctoral or post-doctoral projects), to favor initiative, risk taking and innovative research. Breakthrough topics and new partnerships are the core of this call for project, over a short duration, to promote dynamic research partnerships.

LEVERAGE / KEY EVENTS

This year, the Seed funding call for projects has shown a good momentum, allowing either to initiate new partnerships, or to strengthen existing partnerships, on new research subjects. A specific highlight was also put on the development of multi-laboratory projects - both within the consortium as well as in partnership with other universities and research structures - as well as on subjects accompanying the current evolution of the strategic objectives of the research units (BIGS for example).

INDICATORS

Projects funded since obtaining the I-Site label: 8, supported in 2020: 4 (over two sessions, all affiliated to the STEE* College)

Budget

- < 140 k€, for a PhD or a postdoctoral fellowship,
- includes < 60 k€ for operating costs and/or investment,
- partner(s) must provide for 2/3 of the budget.

*Sciences and Technologies for Energy and the Environment

Projects:

BIGS: Monitoring aromatic pollutants in aquifers used for storage purposes. Development of an innovative methodology for isotope characterization, use of in-situ sampling and molecular simulation - Led by I. Le Hécho and G. Galliéro, IPREM - LFCR, in collaboration with Storengy.

BioVine: Study of the possible bio-controls exerted by micro-organisms on the development of grapevine disease (mainly linked to a fungus of the genus Fomitiporia, causing Esca). Partnership with BioVitis and Sciences Agro Bordeaux. Led by E. Attard, IPREM.

3D Elastomer Printing: Investigates the possibilities of using natural or synthetic rubber for the development of 3D printing, with a specific focus on vulcanized rubber. Led by C. Dérail, IPREM, in collaboration with the EMAC company and the LCPO, at the University of Bordeaux.

IchtyoGrid: Development of ichthyocompatible hydropower intake to minimize the impact of the development of hydropower production methods on the biotope. Led by Y. Le Guer, SIAME in collaboration with the “small electricity union”.

Interview 2020 edition

BIGS

Isabelle LE HÉCHO

Lecturer-researcher, IPREM

Project team: Romain Vermorel, Guillaume Galliero, Hervé Carrier, LFCR, Maxime Enrico (Post-doc E2S), David Dequidt, STORENGY

BTEX Isotopic fractionation for Gas Storage in aquifers monitoring (BIGS)

Groundwater quality management is a major concern when storing natural gas in aquifers. One of the promising indicators concerns the monitoring of the natural bio-attenuation of volatile organic tracers, such as BTEX, by measurements of the isotope ratios of δ13C and δD. However, it requires a robust and precise measurement chain and an interpretation framework that is still under debate. This is what motivated researchers from 2 laboratories hosted at UPPA, LFCR and IPREM, associated with an industrial partner, STORENGY, to elaborate the BIGS project. Its main idea is to quantify the possible fractionation, a priori weak, of δ13C and δD of BTEX due to physical mechanisms (solubility and diffusion) in storage conditions. To achieve this goal, the research program will combine isotope analysis and original experiments, based on natural samples collected under in situ conditions, molecular simulations and thermodynamic modeling. The aim is to verify that isotopic fractionation is above all an indicator of the biodegradation of BTEX.

VINENBUZ

Laurent JALABERT

Professor of contemporary history

The VINENBUZ project is the result of a cooperation started in 2014, with the Vignerons de Buzet. The project studies the history of small European vineyards, with a specific focus on the history of the Vignerons de Buzet, a cooperative structure created after the Second World War and very involved, since 2005, in a dynamic of viti-vinicultural production respectful of the environment. In addition to the history of the company, the research focuses on the history of the Château de Buzet, which has since become the property of the cooperative cellar.

Carried out in interaction with the winegrowers of Buzet, the project is a very promising space for experimentation with HSS / business links. In terms of historical research, the project allows to carry out extremely rich works on the history of a territory in the long term (from Middle Ages to the present day), through various issues, while focusing on questions of wine-growing structures. As such, the project results in classic academic work while also allowing us to measure the importance of corporate cultures and the markers used to cement the work within it. Finally, this history is valued within the territory, as a marker of local development through "public history" or the enhancement of heritage. Both new and quite rare in HSS, these links are here remarkably developed thanks to a partnership where common centers of interest converge, while carrying reciprocal dynamics understood by the political environment (Region, Department). This model is an example to follow.

Research
HEADING FOR ERC

OBJECTIVE

In order to become an attractive international reference in terms of research, E2S-UPPA has implemented a process to help talented and promising early-career or already well-established scientist to prepare their application to the prestigious Starting or Consolidator grants from the European Research Council. E2S-UPPA proposes partial release from duties for teachers for research project maturation as well as individual coaching by consulting companies.

LEVERAGE / KEY EVENTS

Due to the renewal of the research and innovation framework programme (H2020 becomes Horizon Europe for the 2021-2027 programming period), but also to the delay generated by the health crisis, the calls for ERC projects have been postponed, which explains the decrease in number of ERC applications submitted in 2020.

Interview 2020 edition

Sébastien CHAILLEUX

Lecturer-researcher, leader of the PolSSol chair

Ecoextractivism: A new approach towards the European varieties of extractivism

The Enspire agency supported the construction of my 2019 ERC Starting Grant project from April to October. We discussed online and 10 drafts circulated before the submission. This constant reviewing was really efficient to make my project clearer and accessible. I learned to build a project based on a scientific contribution to a social and political issue rather than on a narrow theoretical contribution. The follow-up also made me understand the expected shape of project, resume, ethical annexes and budget. The interest of this follow-up was confirmed the following years during the construction of other research projects, such as an H2020, as I put at the core of these projects the expected empirical findings, indicators and impacts rather than a theoretical framework.

Education

FELLOWSHIP FOR INNOVATION IN TEACHING

OBJECTIVE

The action « Fellowship for innovation in teaching » aims to detect lecturers-researchers who have a project in the educational field, in rupture with standard pedagogic methods, and to support them so that they may achieve it. Tracking back the two past calls, we can observe that teachers do not only need time, they also need support in digital pedagogy since most of the projects strongly involve the university department in charge of these technologies and skills.

LEVERAGE / KEY EVENTS

In 2020, the various calls for projects related to innovation in teaching and pedagogy within the university were centralized on a single platform so as to allow the harmonization of their management.

The digital technologies department, whose services are always highly requested for the realization of educational projects, has also developed a strategy to deal with this year's special conditions and drew up a "COViD plan" to support teachers in their projects.

INDICATORS

Projects funded since obtaining the I-Site label: 22
Including, in 2020: 4

CMI[1] Abroad: a strategy to support outgoing mobility for students enrolled in Engineering Master courses;

EMISITE-short videos: design of promotional and educational videos in English;

L3SBim: transformation of the Health and Social training course to a dual teaching model (both face-to-face and remote teaching)

SMARTMOTIV: deployment of an interactive tool (Wooclap type) to promote student participation.

[1]CMI stands for Engineering Master Curriculum that is a particular kind of Bachelor degree. This degree has been recently implemented in France and is based on the model of the Masters of Engineering as offered in most well-recognised international universities. A CMI curriculum is built on the association of Education-Research-Enterprise. The lecturers and laboratory members work together with private enterprises over the 5 years of this curriculum; a CMI curriculum is always affiliated to a well-established laboratory (both at the national and international scale) and involved in partnerships with private enterprises. Starting right from the first year, projects and internships represent a great part of the curriculum, along with special activities intended to place students in specific contexts, combining scientific specialisation and personal development. An international mobility (a semester abroad) is also part of such a programme.

Interview

CMI Abroad

Clarisse BORDES

Associate Professor, LFCR research unit & Geosciences Departement

Coordinatrice Inter CMI UPPA

The “Cursus Master en Ingénierie” is a five-year university course of excellence, such as an “Honors Program”. It allows selected students to reinforce their Bachelor’s and Master’s course thanks to numerous classes based on research, as well as entrepreneurial culture. CMI students have to do an international mobility (of minimum three months). The CMI Abroad project aims to implement a support strategy which takes into account all the obstacles to the mobility.
Drama classes in English and the preparation to this mobility help students to facilitate their fluency in oral comprehension and expression. The ambition is that every second-year student obtains the B2 level thanks to an intensive specific TOEIC preparation and session. In addition, each student is given an individual support allowing him/her to speak about his/her project and its feasibility in the short/midterm. As a consequence, 97% of the third-year students state that they are ready to leave for an international mobility.

Master Bioinspired Materials

Laurent BILLON & Corinne NARDIN

Professeur en Chimie des Polymère et Professeur de physique

In September 2020, the BIM master « Bio-Inspired Materials » opened at the Université de Pau et des Pays de l’Adour (UPPA) its 1st class to bachelor students with majors in biology, chemistry or physics. Master classes in English, to ensure visibility at the international level linked with activities in line with the research conducted in the Institute of Analytical Sciences and Physico-Chemistry for Environment and Materials (IPREM) aim at connecting the lab to the living world and giving bio-inspired methodologies to develop and innovate otherwise today, the materials of tomorrow.

Laurent BILLON

“The BIM Master is in line with the current challenge of the ecological and sustainable transition. Mimicking strategies evolved by Nature represents infinite scientific and technological challenges that will be undertaken by choosing bio-inspiration. With this Master of Science MSc, unique in France, we aim at proposing to the students to explore living systems to get inspiration to develop novel materials and to keep in mind ethics and consciousness of their environment.”

Corinne NARDIN

“The training during the BIM Master will be focused on active pedagogy, in the project mode. Through this approach, we expect to develop the student’s autonomy, curiosity, creativity and emotional intelligence to train future young researchers granted with a peculiar ability to think in a collaborative mode and to drive bio-inspired research projects.”

Education

TALENT'S ACADEMY

OBJECTIVES

The purpose of the Talent's Aacademy is to identify, attract or retain the most promising students who are granted a special allowance to entice them to devote themselves to their studies in the field of expertise of E2S UPPA.

In 2020, the two-wave procedure - the first of which is based on international recruitment calendars - was renewed, thus making it possible to focus on the recruitment for the international masters taught in English, with four new courses offered for the start of the 2020 academic year.

LEVERAGE / KEY EVENTS

The "UPPA Entreprises" office has established a first directory of the Talent's Academy laureates, intended for the various partners in the socio-economic world. The objective is to both increase the visibility of this action and to promote contacts between these partners and students. This directory was sent by mail to both of these publics and a more official event is planned for as soon as the circumstances shall allow it.

INDICATORS

72 laureates in 2020 including:

— 11 in L3[1]

— 16 in M1

— 45 in M2

[1] TLN: In France, L3 refers to the 3rd and last year of a Bachelor's degree while M1 and M2 respectively refer to the 1st and 2nd year of a Master's degree.

Interview

2020 laureate

Reine ABOU SLEIMAN

currently in her 2nd year of the Master « Industry 4.0 »

"Currently enrolled in Master 2 « Industry 4.0 », I am preparing a double degree (UPPA-Antonine University in Lebanon). The excellence of my academic results has enabled me to be a laureate of the 2020 Talents Academy, which has increased my chances to follow this master's degree, due to the scholarship granted by E2S UPPA's Talents Academy. I followed the courses on site, first face-to-face and then remotely. The UPPA has implemented several mechanisms so that students are not penalized by the current sanitary situation. I particularly liked the interactive videos. As for the practical work, since materials are essential, we formed groups with distance students and shared the manipulations performed during practical courses with them (via teams). In addition, all the students - present and distant - each had access to a dedicated server. So, despite the crisis, I feel like I have had a unique experience. Currently in an internship at the LIUPPA, I hope to be able to register for a thesis at the UPPA next year."

2019 laureate

Sarah PEREZ

1st year PhD student in Applied Mathematics, IPRA - LMAP
Doctoral School of Exact Sciences and their Applications (ED 211)

Laureate of the Talent's Academy for several years, I have progressed with E2S UPPA and had the opportunity to experience its effects; whether it is the interdisciplinary engagement for environmental issues enabled by conferences bringing together thematic experts, PhD students, and students of various backgrounds; the openness to other fields including entrepreneurship, real learning about the theme and interrelationship or even an international master with a multicultural influence and wide personal enrichment. With these experiences, I am currently pursuing my commitment as a PhD Student, funded by E2S UPPA.

Education

INTERNATIONALISATION OF TRAINING COURSES

OBJECTIVE

The objectives of this action are:

- to provide linguistic and pedagogical support for teachers wishing to teach in English in the flagship International Masters
- to increase international attractiveness of the UPPA by promoting the venue and the graduation of non-French speaking foreign students, in particular at master and PhD levels, from priority international partners,
- to foster the development of an international and multicultural environment for our students, teachers and researchers.

LEVERAGE / KEY EVENTS

The offer of Masters fully taught in English increased with the addition of the first year of the Master in "Chemistry and Physico-Chemistry of Materials" and the opening of the Erasmus Mundus master in "Environmental Contamination and Toxicology". There are now 13 Masters taught in English during their 2nd year and 3 during their first year.

As part of the "International opening of training" action, a specific action aiming to support and promote the transformation of courses to a completely remote model was coordinated by Olivier Hofmann.

INDICATORS

— **Courses in English:** 7 courses were added this year to the list (for a total of 50 courses taught in English since the start of the project).

— **Number of teachers supported:** 41 since the start of the project including 7 teachers in 2020.

— **Hours spent in English:** 1218 hours since the start of the project with 90 additional hours added in 2020.

— **International Masters:**

2nd year Masters in English: 13

1st year Masters in English: 3

Interview
2020 edition

Maria MORENO

enrolled in a Computer Science Master Programme – with a specialisation in “Industry 4.0”

“For half of the period of the Master’s classes, I was still in my home Country Venezuela with a six hours difference from France. Thanks to the Asynchronous classes I was able to follow and finish the courses successfully at my own pace, without the need of being in France. The course resources were well organized into paths allowing the learning to be natural to pursue. Additionally, some learning analytics features help me to better organize myself. It was possible to visualize my progression in all the courses and the topics where I was behind were remarked, allowing me to act in consequence and be always up to date with the course subjects.”

Ernesto EXPOSITO

Head of Computer Science Master Programme: Industry 4.0
Vice-Rector for International Relations

The transformation of courses into fully distance learning has not only reduced the impact of the crisis in the admission of international students, but has also been an opportunity to innovate and improve the quality of our teaching. This new approach will enable the development of virtual mobility, which is a more economical and ecological mechanism that will help students to gradually prepare for full physical mobility. Indeed, future mobilities will be hybrid, which is what we are planning in the framework of our European alliance UNITA. A student will be able to carry out a physical mobility in one of our UNITA partners and at the same time follow distance courses in the framework of a virtual mobility. This is a new way to create personalized pathways and even to implement the new European approach to micro-credentials.

Olivier HOFMANN

English lecturer
Linguistic Support for the English as a Medium of Instruction programme

Following the COVID-19 outbreak in March 2020, some of our International Masters volunteered to take part in a project aiming at delivering hybrid courses as early as September 2020. The implementation of such a task has required a tremendous amount of efforts from the teaching staff, both in terms of pedagogy and Education technology. Considering the urgency of the situation, I can say that they all remarkably adapted to this unusual situation. Building on this year’s students’ feedbacks and the teachers’ experience, we have now started a phase where the syllabi will undergo some pedagogical redesigns. On the digital side Moodle layout improvements will be made and the use of learning analytics tools will be extended. The project is still in its start-up phase and I suppose that it is bound to expand to other disciplines in the future.

Education

DEVELOPMENT OF LIFELONG LEARNING

OBJECTIVE

To help students to find work more easily and to promote applied research, E2S UPPA bets on the dissemination of the work-link training model, especially at the postgraduate level ("contracts of professionalization" and apprenticeship).
Based on a close partnership between academic departments and companies, this training is a key factor in the promotion of our Master degrees. We also aim at increasing the number of companies using our technology platforms (UPPA Tech) to train their employees.

INDICATORS

12 master's courses are now open to apprenticeship (or lifelong learning models).

A catalog of short training courses based on UPPA TECH's resources is now available to companies.

LEVERAGE / KEY EVENTS

The lifelong learning service (FOR.CO) and the university's professional training center for apprenticeship (CFA) persevered in their efforts to disseminate as widely as possible, and in particular at master's level, the work-study model. To make this learning method better known, they implemented a strong communication strategy during the spring of 2020: the "Lifelong learning Days" at the UPPA. An innovative poster campaign drew the public's attention to this university's mission - even though the event itself, given the health situation, needs to be rescheduled. Emphasis was also placed on short training courses intended for small and medium-sized companies and based on UPPA TECH's technical platforms.

Education

PYREN-E2S UPPA

OBJECTIVE

With the aim of continuous improvement and increasing skills, more specifically in the linguistic and pedagogical fields linked to the cross-border context, the PYREN-E2S UPPA network offers its members a variety of pedagogical innovation actions:

- graphic facilitation
- intercomprehension in Romance languages
- support in collective intelligence
- language training

INDICATORS

Language tandem: 227 students and personnel

Long-term Erasmus mobilities: 9 outgoing and 7 incoming

Short-term mobilities: 167 students

Personnel mobilities: 57 teaching and administrative personnel

Remote training sessions: 209 teaching and administrative personnel (both French and Spanish ones)

Delphine BAUDU

Speaker - AXELMAGE

Though different in nature (two kinds), the trainings session organized upon the request of PYREN were complementary. All of them involved providing mixed audiences from the University with the following teachings:

Operational keys to design and run tailor-made collaborative meetings and to transpose those principles to the courses they teach, through a training focused on the facilitation of collaborative processes. Three main parts were thus covered: the two main stages upstream of the workshop: guidance and design, plus a third stage devoted to the facilitation of a collaborative workshop,

A simple practice of drawing, used to give a structured global vision in addition to writing, through training in graphic facilitation. Two major themes were discussed: the acquisition of graphism related vocabulary and information structuring models.

These two trainings mobilized the groups' collective intelligence; beyond the strict content of the training, they were able to experiment online participatory work (80% of the activity, the remaining 20% being devoted to theoretical content).

Ximun LASTIRI

PhD candidate - HPC-Waves chair

Meetings are an important part of our professional lives. That is why I chose to undergo this training in order to both improve my skills and acquire new tools in this field, so as to be able to better exchange ideas in a group. These goals have been largely achieved and I hope I will be able to apply all of this - whether in class, with students, or in meetings, with colleagues.

Valorisation & **TECHNOLOGY TRANSFER**

OBJECTIVE

This call for projects consists in supporting the development of innovative projects, from laboratories and research institutes, with high transfer and/or socio-economic potential. This call is intended to support transfer projects regardless of their position throughout the chain: from pre-maturation (proof of concept, improvement or application of the law) to industrial-scale implementation in order to accelerate the diffusion of technologies, products or services.

LEVERAGE / KEY EVENTS

Corinne Parrat continues to increase the Technology Readiness level (TRL) of her Phytocaptor technology transfer project (2018) with the funding for her scientific challenge project, "Captain Ad'Hoc".

INDICATORS

Projects supported since labeling: 12

In 2020: 3

-ELIPSE: Experimentation in a lake area of a prototype Photovoltaic Installation with electrical storage and promotion of self-consumption around irrigation water, Stéphane Gibout, Lecturer, LaTEP, STEE College

-I2S2: Impact-ionization semiconductor switches for pulsed power applications, Anton Gusev, Lecturer-researcher, SIAME, STEE College

-SOFTSSYD: Software package for thermal storage systems dimensioning, Tarik Kousksou, Lecturer, SIAME, STEE College

Budget moyen de 80 k€

Interview

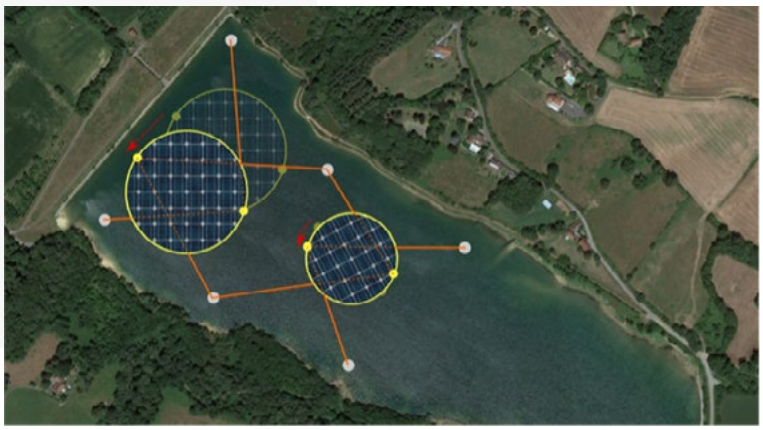
ELIPSE

Stéphane GIBOUT
Lecturer-researcher, LaTEP

Experimentation of a prototype of Photovoltaic Installation with Electric Storage and promotion of the self-consumption around the Irrigation Waters

The development of photovoltaic power plants raises the issue of competition for land usage. Irrigation reservoirs, managed by farmers, are areas available for the installation of floating photovoltaic plants (FPV). These lakes have, by usage, variable depths in time, which requires the development of specific active devices that open the possibility of a dynamic orientation of the platform allowing to maximize the electrical production.

The objective of this project is to design the technological bricks necessary for the deployment of FPV on irrigation lakes, keeping in mind the environmental impact reduction. LaTEP laboratory is involved in the whole project, and more specifically in the design of the floating structure, as well as in the variable water depth management and dynamic orientation towards the Sun. E2S allows us to work in very good conditions by financing two technical staff who participate in the design and the construction of the prototypes. In collaboration with the Chambre d'agriculture 64 and the Groupement des irrigants 64, a pilot installation (about 200kWc, operated in collective self-consumption) is under construction and three projects (for a total of about 12MWc) are under study in the department 64.



Projet ELIPSE - crédit Stéphane Gibout

HOLOBIONICS

Eléonore ATTARD
Research Engineer,
College STEE, IPREM

Engineering of the endophytic corn microbiome

The Holobionics project aims to inoculate maize seeds with beneficial microorganisms for plant growth and health. This call allowed to relate Euralis thematics (6th largest producer of field seeds in the world) and our scientific and technical skills on the plant microbiota. Thanks to the establishment of a partnership agreement between Euralis and E2S UPPA, we were able to finance this research to find, identify and inoculate bacteria in several cultivars of interest for Euralis. The biodiversity of the seed microbiota was studied to improve the efficiency of inoculation techniques. This pre-maturation project is coming to an end, and we are currently in discussion with Euralis to validate the preliminary results and consider submission of a maturation program (co-) funded by the SATT.

Valorisation & Technology transfer

UPPA ENTREPRISES

OBJECTIVE

The liaison Bureau which has become UPPA Entreprises is the privileged entry channel for socio-economic actors for all the services that can be offered by the UPPA (training, research, service, technology transfer, etc.). He is a relay, both internally and externally, intended to establish relationships, facilitate contact, amplify communication and the exchange of information, but also ensure the follow-up of relationships.

INDICATORS

UPPA Entreprises has a dedicated team of 4 ETP with the dual mission of openness to the socio-economic world and efficiency of the relationship with the company: a director, two in charge of business relations (one in the Basque Country and the another on Béarn and Soule) and a manager and receptionist.

UPPA Entreprises is positioned on three major strategic actions:

-The deployment of an establishment CRM (Customer Relationship Management): this tool was put into production in July 2020 and makes it possible to centralize the data of partnership contacts of all types (research contracts, services, training, tax. apprenticeship, internships). The various services and components are being formed and the data is being integrated. By the end of 2021, around 30 users will have benefited from training with our provider and around 90% of the establishment's data will be integrated. Specific tools (charts, matrices, guide, visual masks, etc.) have been developed for its proper use. This CRM is optimized over time according to the needs of each service and its use. A monthly meeting with all users is offered to optimize the tool and have their feedback.

-The visibility of the UPPA's offer in the socio-economic world: UPPA Entreprises has also equipped itself with a commercial tool allowing the targeting of companies according to predefined criteria in connection with the needs of the services . UPPA Entreprises is thus in the capacity to provide a qualitative and quantitative list of future partners and therefore increase its visibility with local players. A specific website listing all of the university's offer for businesses is available at https://uppaentreprises.univ-pau.fr/fr/themes.html. UPPA Entreprises is also involved in the organization of the E2S UPPA partners evening in July 2020 and will be in support of promoting "energy and environmental transitions" in line with the positioning of E2S UPPA. He is also an important player in the creation of the Talents' Academy book and other tools for the socio-economic world.

-The revitalization and animation of CEPyA (UPPA Business Club): UPPA Entreprises ensures a close link and the development of joint initiatives with companies and in particular those members of the CEPyA association which is today a partner of the various events organized by the UPPA services (UPPA Stage Dating, Junior company of ISA BTP, UPPA TECH, Hackathon…). The objective of CEPyA is to promote relations between companies and research laboratories, laboratory instrumentation; to contribute to the professional integration, to the culture of the entrepreneurship of the students and to the reflection of the adaptation of the offer of training to the territories by forwarding the information and the needs of the socio-economic world to the authorities of the 'UPPA to guide the deployment strategy and the improvement of tools.

CEPyA has 10 founding members and in the space of a few months around 20 companies. About twenty additional companies should join CEPyA by the end of 2021. It also organizes its own events such as webinars throughout the year for its members and the establishment's services such as the webinar on "how to increase your influence on LinkedIn" or on "employee loan" (with UIMM Adour Atlantique and DIRECTTE Nouvelle Aquitaine). Actions have been taken following requests from specific companies, such as connecting with certain services or components to test a mobile application and learn about the impact of climate change on younger generations, the aim being to improve the image and attract these generations to their jobs.

All the news can be found on the LinkedIn page: https://www.linkedin.com/company/cepya-club-des-entreprises-uppa

Valorisation & Technology transfer

SUPPORT FOR PROFESSIONAL INTEGRATION AND ENTREPRENEURSHIP MENTORING

OBJECTIVE

Despite the current context, entrepreneurship is once again supported and encouraged by the UPPA, which is diversifying its actions in order to strengthen the links between the university and professional integration:

- Awareness of entrepreneurship among all UPPA students through presentations of the measures, the implementation of course units dedicated to entrepreneurship and events open to all
- Specific support, for students and young graduates promoting a project, thanks to personalized attention and workshops, afterworks and entrepreneurial seminars led by professionals from the socio-economic world and the creation of a specific university degree.

INDICATORS

- Presentation of the courses implemented to raise the awareness about entrepreneurship as well as the support courses to entrepreneurship: around 2,000 students informed of our actions
- Entrepreneurship awareness-raising unit: 385 students trained (all disciplinary sectors and levels combined) on the campuses of Pau and the Basque Coast
- DU D2E Business Tools: 15 students and young graduates enrolled
- Winter Camp on Entrepreneurship: 35 participants and 3 days dedicated to business creation
- Entrepreneurial project support: 80 students and young graduates benefited from personalized follow-up
- Thematic workshops / afterwork sessions organized for students with the national student-entrepreneur status (SNEE) (from January to December 2020): 10 workshops and 8 afterworks

Success story

Témoignage
Antonin LAURENT
Happy Creator of LookUp

After my Bachelor at ESC Pau, I obtained a University Diploma focused on "Tools for Entrepreneurship", in 2020, at the Université de Pau et des Pays de l'Adour. I am now working full-time on the development of the company and its activity.
I created LookUp to reduce the impact of new technologies on our health. To do this, we design and market ergonomic accessories for businesses in order to improve the working environment for everyone. Whether in the office or at home, our solutions improve both the workspace and posture of workers. Our products are made in France from recycled materials resulting from the circular economy.

The National Student-Entrepreneur Status made my approach more credible with the various stakeholders in the project while giving me confidence (both in myself and in my project) when I discovered entrepreneurship. The support offered by the UPPA allows you to gradually learn the profession of a business leader and manager. Altogether, they were a real springboard towards the creation of my company.

Attractiveness

PHD GRANTS

OBJECTIVE

The E2S UPPA wish to attract candidates who are noticeable by their scientific excellence, candidates with a clear passion for research and who are excited by the opportunity to provide future solutions for energy and environment. They will be exposed to the intellectual and practical challenges of a research project, which enhances the doctorate holder's creativity, leadership potential, rigor and ability to meet unexpected challenges. All these skills are part of the very relevant results of our doctoral training and will be easily valued in many of the future work environments of our PhDs.

INDICATORS

Bourses accordées depuis la labelisation : 35 dont 13 en 2020.

- **268 candidats** dont 92.54 % d'étrangers
- **13 lauréats** dont 53.85 % d'étrangers
- **52 nationalités** (dont 7% de Francais)

Interview 2020 edition

Marius BIDON

Doctoral School of Exact Sciences and their Applications (ED 211), SEA College, NuMea

Thesis subject: Study of interactions between selenium and mercury in rainbow trout

"Obtaining an E2S UPPA grant to do a thesis was an incredible opportunity for me. The strength of this scholarship is the possibility that it leaves to the candidate to build a thesis project that is fully in line with their academic background and areas of interest. The UPPA also has a large network of partner laboratories, which allowed me to choose the one that seemed most appropriate to my interests. I am currently doing a thesis at INRAE where I am working on the interactions between mercury and selenium in rainbow trout. This topic fits into a larger theme, namely reducing the impact of the fish farming industry on the environment. This is a major challenge that fits in with the times and motivates me greatly. During my doctorate I will also be required to work in a laboratory in Norway. This stay abroad is supported for an E2S mobility grant, which will allow me to live this experience fully and in the best conditions! This allows me to be invested and fully fulfilled in my thesis and I greatly thank the E2S UPPA for that. I can only encourage you to apply for an E2S UPPA scholarship which places the candidate's interests and skills at the forefront in the development of his project while providing a work environment of excellence."

Bruno MORENO

Doctoral School of Social Sciences and Humanities (ED 481), SSH College CATT

Utility Business Models in the Presence of Distributed Energy Resources – DER: A Market Analysis Approach and Future Trends

"After gaining experience in the job market, I decided to realize a dream and conduct a PhD abroad in the sustainable energy domain. In 2017, I saw the call for the E2S UPPA PhD grants to conduct a PhD in France and I decided to apply for. I was accepted by the committee after competing with many other strong candidates. Doing a PhD thesis is a complex process, but I could always count on the E2S UPPA team to support me during this time. With the PhD grant offered by the project, I could largely cover all my living expenses. I could also benefit from the E2S UPPA PhD mobility grant to visit a research laboratory in Belgium and this time spent there was crucial to upgrade the level of my research. Before even having defended the thesis, I was already hired by a French energy consulting. Therefore, the E2S UPPA project was one of the main keys for me to achieve my professional goals."

Attractiveness
PHD PROJECT

OBJECTIVE

The E2S UPPA wish to attract candidates who are noticeable by their scientific excellence, candidates with a clear passion for research and who are excited by the opportunity to provide future solutions for energy and environment. They will be exposed to the intellectual and practical challenges of a research project, which enhances the doctorate holder's creativity, leadership potential, rigor and ability to meet unexpected challenges. All these skills are part of the very relevant results of our doctoral training and will be easily valued in many of the future work environments of our PhDs.

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Interview
2020 edition

Iban SEILIEZ
INRAe, supervisor

Simon SCHNEBERT
PhD student E2S UPPA -
(ED 211 SEA) :
The role of chaperone-mediated autophagy in the metabolic utilization of carbohydrates in the rainbow trout

"In the context of the expansion of aquaculture worldwide, one of the major challenges is to advance our understanding of the mechanisms of nutrient utilization in fish. Recently, we demonstrated the existence, in these species, of a critical function of the control of metabolism known as CMA (for Chaperone-Mediated Autophagy), hitherto ignored. We now propose to characterize its regulation and role in a major commercial fish species of the French aquaculture industry, the rainbow trout. The E2S scholarship was a real opportunity for me to join the internationally renowned UMR NuMeA INRAE / UPPA and to work with a dynamic and passionate research team. My thesis project is at the interface between fundamental research aimed at deepening our knowledge of a major metabolism function and applied research proposing an improvement of the current state of aquaculture. It allows me to get a glimpse of the various issues (scientific and societal) in research that E2S must face. It is also a unique chance to learn new concepts, new approaches and allows me to challenge myself with high-level research. The stay in an American laboratory (USDA, West Virginia) scheduled for 2022 will also bring an international dimension to my thesis."

Attractiveness

JUNIOR CHAIRS

OBJECTIVE

These chairs are directed towards young promising researchers, typically with a research experience of 1-4 years after their Ph.D. The call for applicants is opened and widely advertised internationally. Recipients are offered a five-year tenure track position and a starting package with a doctoral fellowship, five one-year post-doctoral fellowships and support for direct costs. Chair holders are expected to reach a level allowing them to apply to ERC starting grant with success.

LEVERAGE / KEY EVENTS

In 2020, two holders of junior academic chairs, Florian Beaumatin and Nicolas Beaudoin, successfully passed the three-year evaluation of their chair.

INDICATEURS

Junior Chairs funded since the label « I-Site » was obtained: 13, in 2020: 3 academic ones

— **Duration:** 5 years

— **Research, facilities and administration costs for a Junior Chair:**

1 contractual lecturer-researcher
1 doctoral student (duration 3 years)
5 post-doctoral students (duration 1 year)

— **Budget:** 100 k€

— **Origin:**
ENS Paris
Université de Pau et des Pays de l'Adour

Interview 2020 edition

DYEV

Lise DESVALLÉES

DYEV, Dynamics of energy vulnerability: experiences and politicization of everyday transport and domestic needs under energy transition policies

The Junior Chair analyses the dynamics of energy vulnerability, that is how households struggle to achieve basic transportation and domestic needs, and sets them in the context of energy transition policies. The research program adopts a spatial approach of the problem, taking as a case study an “energy transect” drawn across the landscapes of Southwestern France from Pau to Bordeaux. The methodology combines evaluation of policies and local collective mobilizations on energy rights with a study of everyday consumption practices, the latter mobilizing both a spatial analysis and qualitative household surveys. Our research enables on one side, a better understanding of the social impacts of energy transition strategies on vulnerable households. On the other side, it aims at evaluating the social-oriented energy transition potential across French municipalities.

AWESOME

Anaïs BARASINSKI

Lecturer Researcher,
STEE College, IPREM

AWESOME - mAnufacturing of neW gEneration Sustainable and therMoplastic coMpositEs

Graduated in mechanical engineering and passionate about materials and the physics of their processing, I have for more than 10 carried out research projects in this field in a mechanics laboratory. I chose to give a turning point to my career 2 years ago by applying for this Chair and to follow my research within a physics and chemistry lab, and not a mechanics lab, it was a daring bet, with a beautiful story to write, to link materials from their smallest scale, their manufacturing processes and induced properties to the final properties of the manufactured parts.
The COVID crisis suddenly appeared in our daily lives and the resulting brake on social relations have somewhat changed the development plans of the Chair, this allowed me to take advantage of this time to defend my French Habilitation and finalize my diplomas.
Everyday life restarted in a slightly different way, the partners network of the Chair (either industrials or academics) and the students involved was created and beautiful projects began to emerge mixing skills wide and varied.

Sponsors: E2S – Arkema – Canoe

Attractiveness

COFUND EDENE

OBJECTIVE

The European Doctoral Programme in Energy and Environment (EDENE) is a multidisciplinary, intersectoral and international ambitious project over a 5 years duration offering a quality training to 30 international and highly skilled PhD Fellows in the field of Energy and the Environment.

Since obtaining the I-site (competitive Initiative for Science/Innovation/Territories/Economy granted by the French programme Investments for the Future) label for its project Energy & Environment Solutions (E2S), the Université de Pau et des Pays de l'Adour's priority is to develop international collaborations with targeted universities, to attract new talents, and to develop its international courses offer, mainly in Energy and Environment areas, while pursuing cross-border collaborations and solid partnerships with international companies located in the southwest region of France – which is already part of its strengths. EDENE was born from these collaborations and gathers leading expertise from a strong consortium: two universities (UPPA, University of Zaragoza), international companies (TOTAL, Enedis, Bertin, Teréga) competitive clusters (POLE AVENIA) and Technology Transfer Office (Aquitaine Science Transfert - AST). EDENE's ambition is to create a work dynamic around innovative subjects and to develop new international collaborations in the disciplines for which the UPPA is recognised: in Sciences and Technologies (Mathematics, geosciences, ecology, oceanography, engineering, biology, physics, chemistry, mechanics...) as well as in Social and Human Sciences (Social Sciences, economics, law, geography...). Led by Gilles Carbou, in conjunction with the Centre for Doctoral Studies and the SEA and SSH doctoral schools, the EDENE project will last 5 years from September 2021, with a total budget of 6.2 million euros. It is co-financed by the European Union to the tune of 2.4 million euros.

LEVERAGE / KEY EVENTS

EDENE meets the "3I" principles of a Marie Curie COFUND project:

- **Interdisciplinarity:** the thesis projects are collaborative between the two UPPA doctoral schools and the associated research laboratories.
- **Intersectorality:** setting up a partnership with a non-academic actor (internship, mentoring, secondment).
- **Internationality:** the programme is aimed at young international researchers, who can do part of their research abroad at UPPA's partner universities, such as the University of Zaragoza.

EDENE is a Programme of Excellence which is committed to being in line with the European Charter for Researchers, the code of conduct for the recruitment of researchers and the label of Excellence in Research Human Resources obtained by UPPA.

Following the launch of its first Call for Proposals in January 2021, EDENE received 32 applications in all areas related to Energy and the Environment: 3 in SSH and 29 in SEA. Following a very rigorous selection process carried out by 3 scientific experts, external to the project and to UPPA, and then in font of a jury for the auditions, 10 candidates will be hired at the end of June 2021 by the Selection Committee.

INDICATORS

- **30 doctoral students selected, in three cohorts of 10 doctoral students**
- **Duration of the program of 5 years (2021-2026)**
- **Total budget of 6.2 M€, including 2.4 M€ from the European Commission**
- **7 public and private partners**

Attractiveness

INSTRUMENTAL SERVICE CENTER UPPA TECH

OBJECTIVE

The instrumental service centre « UPPA Tech » brings together all the powerful experimental equipments available within the research labs hosted by the university.

While aiming to professionalize and harmonize the practices of all the platforms, UPPA Tech aspires to offer cutting-edge experimental means operated by high-level technical staff. Its main objectives are to integrate its offer into national and European instrumental networks and to develop instrumental platforms shared with companies' R&D centres, and to offer its means to develop initial and vocational training. UPPA Tech is a structure serving the influence of research and innovation and has a capital role in the University's Research and Innovation strategy, in connection with the E2S UPPA project.

INDICATORS

Assistance and support, major investment projects for excellence in research: management of a new equipment project amounting to € 1.4 million
CLIMAC, a transversal approach to societal issues: contributions to the limitation of climate change and its consequences (obtained in 2020):
1.4 M € invested (involving the following platforms: G2MP, CRG, DMEX, SCOPE, ECOMES)
Objective: to assess the impacts of climate change and its consequences on coastal, mountainous and river systems and to propose mitigation strategies
Assistance and support - technical staff recruited to support the platforms: recruitment of 16 staff members to help with the platforms' operation

LEVERAGE / KEY EVENTS

Management and continuous improvement: professionalization and rationalization of people's access to research equipment

- **January 2020:** Creation of 2 new platforms, SCOPE and MATCO
- **Since January 2020:** the team is working on and around a structuring approach for the ISO 9001 certification of UPPA Tech
- **July 2020:** recruitment of an engineer assistant in charge of continuous improvement to strengthen the UPPA Tech management, towards a dynamic mapping of platforms (preparation for the implementation of a computerized maintenance management information system)

Platforms financial management: centralized management and operation, at the service of the platforms

- **Further deployment of the platforms' financial management:** 14 platforms managed in 2020 against 5 in 2019
- Consolidation of the previously implemented financial procedures
- Support for equipment projects

Communication and promotion: opening up to the socio-economic actors within the territory

- Publication of UPPA Tech's 2018-2019 activity report (https://uppatech.univ-pau.fr)
- Participation in workshops (5), webinars (3), company visits (7), business agreement (1)
- Participation in the development and implementation of a contacts / opportunities tracking application (CRM), coupled with the harmonization of the practices in terms of partnership relations, across the establishment.

DIFFICULTIES & FUTURE EVOLUTIONS

Thoroughly knowing the means and needs of the territory is a necessity to develop a territorial network of instruments bringing together academic resources and those of private R&DI centres.

An inventory of the opportunities and the means to be pooled is being studied. This will lead to exchanges with external interlocutors representing the socio-economic actors of the territory, to concretize partnerships based on a real pooling of instruments. Opportunities have been detected and discussions are underway.

Internationally developing the instrumental service centre is one of our priorities.

The current instrumental networks – which exist thanks to the expertise of UPPA's researchers and teacher-researchers - are largely identified. We must now work on integrating our platforms into these networks. This requires providing cutting-edge experimental means in a unique and extremely attractive unit, for a research of excellence both within E2S UPPA's perimeter of energy and environmental transitions and while opening up to other themes.

Attractiveness

SUMMER SCHOOLS

OBJECTIVE

Thematic schools aim at training students and young researchers to a specific theme within the scope of E2S. In order to allow E2S UPPA to become an attractive international reference in the topics of Energy and environment transitions, these schools have scientific, methodological and social objectives. They aim not only at positioning the excellence of the consortium's researchers on the topics addressed, but also at attracting the best international students and at building communities of young researchers.

INDICATORS

Summer schools funded since the I-Site » label was obtained : 9, projects supported in 2020: 2 (all affiliated to the STEE College)

Laureates in 2020:

- **Energy transition: governance and society innovations.** This project focuses on the perspective of energy transitions from a technical, legal and societal point of view in order to incite the different actors to collaborate, with the aim of sharing knowledge and actions. Recurring school run by Isabelle Moretti (LFCR), in partnership with Sciences Pau Bordeaux and the University of the Basque Country in Bilboa.

-**International workshop on Andromous Salmonids**. Recurring international school whose particularity is to be organized by and for PhD candidates and post-doctoral fellows in the discipline. Organized in a different country every year, at a European scale, this edition - carried by Mr. Buoro (Ecobiop INRAE) - is its second French edition and confirms the very good momentum of E2S UPPA's teams on these themes.

LEVERAGE / KEY EVENTS

2020 is marked by a transition in terms of the management of the university's summer schools: after two years of management by the E2S team, and in line with the strategic development of the UPPA as a university of excellence, the Summer School call for project is now entirely operated by a separate structure. The Summer Schools office was thus created to support lecturer-researchers, researchers and professors in the organization of thematic schools with 2 objectives:

-to promote the UPPA's scientific expertise around cutting-edge and innovative themes

-to promote the emergence of new projects and a new training offer

This Summer School office is a mission entrusted by the establishment to the College of European and International Studies (EEI), as a priority axis of its Objectives and Resources Contract with the College. As such, each year, the EEI College's mission is to organize all the summer schools and thematic schools implemented by one or more Colleges, on all the Campuses of the UPPA and in partnership with the UPPA's staff.

These events are a unique opportunity for students, PhD candidates, lecturer-researchers, or any staff, researcher or engineer, wishing to deepen their knowledge or to interact with scientific experts from different disciplines (Sciences, SSH, etc.) on topics of excellency.

Interview
2020 edition

Isabelle MORETTI

Adjunct professor, Chercheuse, LFCR

The new energy mix

Energy is a vital need and therefore a complex industry in which producers, consumers, lawyers and politicians have their roles. The decentralisation of renewable energies and the energy-climate plan are changing the decision-making process. Industrialists, whose projects can be blocked at every stage, are perhaps more aware of this than young researchers. Thanks to the multidisciplinarity of the E2S-UPPA consortium, a summer school has been set up covering the SHS (X. Arnault De Sartre), legal (L. De Fontenelle) and technological aspects of the new energy mix and the roadmaps at different levels (local, regional, international, etc.). The aim is for everyone to be aware of each other's role and of the diversity of choices and expectations throughout the world. After a first edition in Palaiseau in 2019, set up thanks to the support of E2S, the project has grown and has been set up in 2020 with and in the premises of the IEP in Bordeaux. The number of participants has doubled. For 2021 we have decided to focus on the cross-border and to set up in Bayonne in the UPPA premises with the addition of new partners (Universities of Bilbao and Pamplona). The audience is as mixed as the speakers, hard and soft sciences are represented, and in 2020 there were about ten nationalities, meetings with stakeholders and visits to industrial sites completing the week.

Une partie du groupe visitant (dans le respect des règles sanitaires) le méthaniseur à Cestas Pot-au-Pin (Gironde, France).

International
INTERNATIONAL GUEST CHAIR

OBJECTIVE

International chairs are part time visiting professor positions during five years. The call for applicants is opened and widely publicised internationally. Applicants are appointed upon recommendation of the external scientific committee of E2S. Recipients commit themselves to spending on average two months per year at UPPA. Two doctoral fellowships and a five-year postdoctoral fellowship are offered in order to strengthen the relationships between their group and our laboratories.

INDICATORS

International chairs supported since the label « I-Site » was obtained: 6

Kerrie Mengersen, Queensland university of technology (AU)

Bucur Novac, LoughboroughUniversity (UK)

Shih-Yuan Liu, Boston College (USA)

Gellman, Pittsburgh University (USA)

Emilio Palomares, ICIQ (Spain)

Ryan Rodgers, Florida State University (USA)

Research, facilities and administration costs for an international guest chair:

Duration: 5 years, with at least two months per year at the university

PhD: 2 (for 3 years)

Post-doctoral fellows: 5 (for 1 year)

Allotted budget: 125 k€

Interview
2020 edition

Emilio PALOMARES

Spain, Research Professor, Institute of Chemical Research of Catalonia (ICIQ)

Interface Matters in Solution Processed Inorganic/Organic Thin Film Solar Cells for Bio-inspired Solar Fuels Generation

The E2S International Chair represents a distinction, a great scientific challenge but also a societal one. A distinction because your scientific career is evaluated by a panel of colleagues experts in the field and a challenge because it is an excellent opportunity to open new paths, at the forefront of research topics in energy.

The scientific environment of UPPA, and of IPREM through the ITN ESCALED and the EnSuITe Hub, is catalyzing the production of new results around artificial photosynthesis as well as the training of a new generation of scientists working to solve the social challenges related to the use of CO2 as a resource for industry. Within the framework of this chair, we have also responded to European calls for projects to increase our visibility, for example the ERC synergy and consolidator grants.

International
INTERNATIONAL DOCTORAL MOBILITY

OBJECTIVE

The requirements and expectations for the outcomes of doctoral education have significantly changed over the last few years. Although the doctoral degree is obtained through the presentation of new research, in the form of a thesis, the main outcome of doctoral education is now the PhD candidate, who has acquired both a particular mindset and specific skills, mainly thanks to an international experience in research.
PhD candidates constitute a true talent pool and are one of the foundations of E2S UPPA's cooperation with highly ranked international universities, specialized in the field of energy and environment. These international doctoral mobility grants are offered to support and promote such an approach.

INDICATORS

Mobility projects supported since the label « I-Site » was obtained: 48

- **In 2020 :** 23 (11 + 5 + 7)
- **Mobility funded up til now:** 133 months
- **Alloted budget:** 4500 € for each laureate

Interview 2020 edition

Lucile MARIGLIANO

Doctoral School of Exact Sciences and their Applications (ED 211 SEA)

"Analytical strategy for the detection and quantification of nanoplastics by Single Particle Inductively Coupled Plasma Mass Spectrometry (SP-ICP-MS)"

Currently doing my third year of PhD, I obtained the E2S International Doctoral Mobility grant for a stay of four months in Sweden at Kristineberg Marine Research Station. Thanks to this grant, I have the opportunity to better understand the processes leading to nanoplastics in marine debris. More specifically, I study the effects of thermooxidative aging and hydrodynamic turbulence on the fragmentation of plastics into micro and nanoplastics. Another important benefit of this internship is that I am improving my skills in other analytical techniques such as correlative microscopy and Nanoparticle Tracking Analysis. I also love the place, the people I work with and the Swedish culture. I now know that I want to continue working in marine sciences and I am thankful for this grant.

Danylo HATYCH

Doctoral School of Exact Sciences and their Applications (ED 211 SEA)

"Synthesis and characterization of BN Azulenes"

Thanks to the E2S UPPA international mobility grant I had a great opportunity to develop my research project within the collaboration between IPREM UPPA and the group of Pr. Shih-Yuan LIU, from Boston College, USA. During the visit to the Chemistry Department of BC, I was able to adapt to work in a new team and environment. That was a valuable experience in terms of the development of communication skills and teamwork necessary for all researchers. Pr. LIU and his team have a high level of experience in the synthesis and research of aromatic boron-nitrogen derivatives. I acquired new knowledge and valuable skills in this field during my time in this group. The experimental work that I have done at BC lab is a part of my doctoral research project. These skills and experience will be useful for further work at the IPREM laboratory. It is a valuable experience for my development as a researcher in future. In addition, I got the opportunity to improve my English and to learn about the culture and daily life in the USA. I encourage the doctoral candidates to participate in this programme as it is a good opportunity for the development of your project.

International
POSTDOC OF EXCELLENCE

OBJECTIVE

The E2S UPPA consortium wishes to enhance international mobility and to foster links with international partner laboratories.
Thus, PhDs graduated from the UPPA, who are both highly motivated and able to undertake collaborative and international post-doctoral research, are selected based on the excellence of their research work and post-doctoral project, through a competitive evaluation. They are awarded a one-year contract to work at a foreign laboratory, on a subject in line with E2S UPPA objectives.

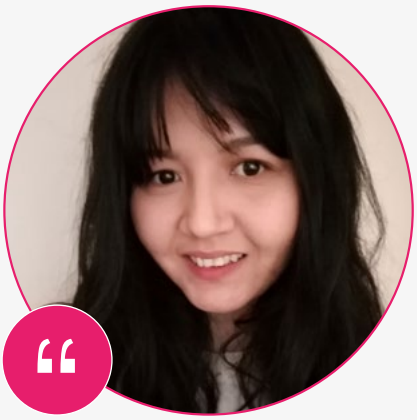
INDICATORS

Mobility projects supported since the label « I-Site » was obtained: 5, in 2020: 2

- Fariza Sultangaliyeva, IPRA-SIAME, Empa ETH Zurich domain - Switzerland

- Etienne Richy, IPREM, University of Queensland – Australia

Interview 2020 edition



Fariza SULTANGALIYEVA
UPPA - Laboratoire SIAME
EMPA laboratory, Zurich – Switzerland

My postdoctoral project in partnership with Empa (ETH Domain) concerns the study of fire behavior of self-prestressed concrete. Rapid increase in temperature provokes a phenomenon of thermal instability of concrete as well as adherence loss between concrete and tendons used in prestressed concrete elements. This leads to immense damage of concrete structure. The problem can be resolved with incorporation of polypropylene fibers; the influence of these fibers on fresh and hardened state properties of concrete have been investigated during my thesis. This project will allow applying and deepening my knowledge obtained during my doctorate at UPPA and learning more on this innovation in the domain of prestressed concrete developed by Empa team.

International

INTERNATIONAL PROJECT UNIT

OBJECTIF

The objectives of this action are:

- to promote and develop relationships with selected high-level universities, ranging from bilateral collaboration to institutionalised partnership,
- to monitor calls for European projects both in the educational and research areas,
- to provide logistical support in the search for partners and funding,
- to help draft call for project proposals.

LEVERAGE / KEY EVENTS

- Progress in the formalization of specific and framework agreements with priority partners.
- Consolidation of the support provided to lecturers and lecturers-researchers in the engineering of both their training and research projects.

INDICATEURS

Agreements signed in 2020:

-International cooperation agreements: 16

-Erasmus + agreements: 6

-Joint-degree agreements: 3

Researchers supported by the European Project Unit for the elaboration of their project: 26

Projects submitted with the support of the European Project Unit: 38 European projects, among which

-2 INTERREG projects

-36 H2020 projects

Selected European projects: 9

International

INTERNATIONAL WELCOME DESK

OBJECTIF

The International Welcome Desk (IWD) aims to smoothen international researchers' and students' landing in France and at the university and to accompany them throughout their stay at the UPPA.

The main objectives are:

-to advise international students, researchers, and researchers' family members on a wide range of topics such as immigration, university enrolment, housing, health coverage, and income tax,

-to participate in the university-wide internationalization agenda by providing assessments and recommendations on internal procedures to be adapted in an international perspective.

INDICATEURS

International students and researchers accompanied by the IWD in 2020: amont which

-international students admitted: 167 (44% more compared to 2019)

-international students enrolled: 100 (95.6 % more compare to 2019)

-PhD candidates and researchers: 208 (26.8% more compared to 2019)

International mobilities supported in 2020: 131 among which

-Erasmus Mundus : 8

-Erasmus : 88 (13 on the costal campuses and 75 in Pau)

-Mexfitec : 3

-ACI : 5

Interview 2020 edition

Iranian PhD candidate, SIAME laboratory

The International Welcome Desk has played a major role in my successful application and settling in France as a PhD researcher, through providing thorough step-by-step guides and assistance. They have been always there for me when and wherever I need help. Undoubtedly, compassionate contributions of the International Welcome Desk team since the beginning, have enlightened the PhD journey in France, not only for me but also for other doctorates.

Canadian Industry 4.0 Master student 2019-2020 intake

As a student moving from Canada, I was excited and nervous to be starting a M2 at UPPA. The welcome desk answered all my questions and helped with medical documentation, the visa process, and opening a bank account. They made me feel completely comfortable and welcomed before starting my studies!

Senior chair holder, German, SIAME

The IWD was my first contact when I moved to France. Since I had never lived in France before I took on my present position, I was glad that I had a competent contact helping with some of the initial administrative procedures such as opening a bank account or arranging a carte vitale and carte de séjour (for my wife). Especially for universities with an expanding international program, such as it is case for UPPA, the IWD is a great asset and it significantly helps international students and staff to quickly settle down and to become familiar with the system in France.

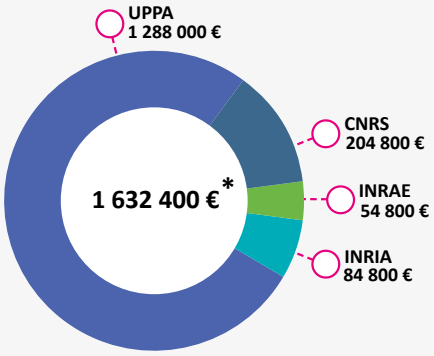
Étudiants sortie plage

Visite guidée Ville de Pau

FINANCIAL REPORT

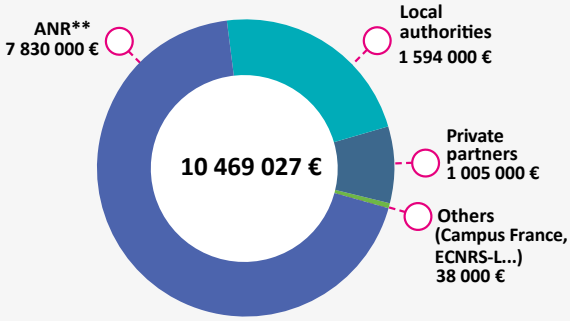
RESOURCES

RESOURCES PROVIDED BY THE CONSORTIUM

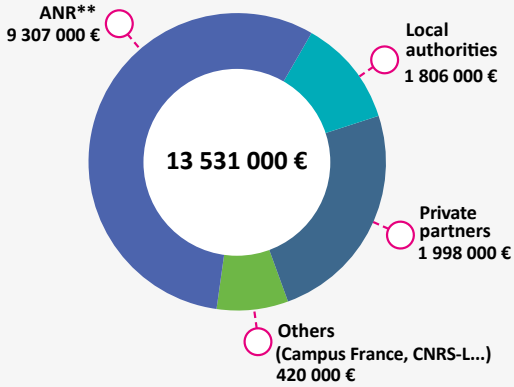


*without Research Administration, Facilities and Administration Costs

CONTRACTS AND SUBSIDIES RECEIPTS



CONTRACTS AND SUBSIDIES ACCOUNTING COMMITMENTS



** French National Research Agency

EXPENSES

EFFECTIVE EXPENSES

E2S UPPA field of action	Expense
Structuration and governance	440 000 €
Research	3 369 000 €
Education	1 742 000 €
Technology transfer	991 000 €
Attractiveness	1 899 000 €
International relations	655 000 €
Student life	60 000 €

ACCOUNTING COMMITMENTS

E2S UPPA field of action	Commitments taken over the duration of projects
Structuration and governance	1 067 000 €
Research	2 277 000 €
Education	2 735 000 €
Technology transfer	1 202 000 €
Attractiveness	5 953 000 €
International relations	231 000 €
Student life	207 000 €

https://e2s-uppa.eu/