

ÉMERGENCE(S)

KEY EVENTS IN RESEARCH AT THE UPPA

(N°7 - DECEMBER 2019)



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The University promotes talent

« Our University needs talents to grow, and to be visible. The quality of our training courses and the recruitment of talented researchers are crucial to enhancing our laboratories' appeal and ensure optimum preparation for the future. To this end, the ramp-up of the E2S UPPA project – Solutions for Energy and the Environment – gives us the opportunity to consolidate our areas of excellence even further, and branch out to explore new fields.

Launched by E2S UPPA in 2017, the Talents Academy is already producing visible results. A third of the masters' students supported by this new system are now studying PhDs at the UPPA. Creating around twenty high-level expertise chairs also enabled us to recruit scientists – both here in France and abroad – recognised for the excellence of their work and the audacity of their projects. With the same momentum, we have created thematic hubs with high scientific potential.

This magazine is an opportunity to showcase our researchers' talents. Some shed light on the past, question how our societies have evolved, contribute to changing the world and are actively involved in the energy and environmental transition. Others win prestigious grants, are distinguished by awards, register patents or embark on the entrepreneurship adventure... All of them contribute to energising life in our laboratories, training future talents and carrying the UPPA's reputation far beyond its geographical borders and academic frontiers.

And frontiers have no place in research. Talents can also come from external sources, like the CNRS, the CEA, the INRAE, Inria, public authorities, major industrial groups, SME, associations, etc. We firmly believe in the complementary nature of competencies, in the power of a region, in the advantages of comparing perspectives, consolidating existing links and creating fruitful partnerships. In short, a University of talents is built by reaching out. Together.»

Mohamed Amara

*President of the Université de Pau
et des Pays de l'Adour*



Partners at the heart of E2S UPPA

The E2S UPPA project promoted by the consortium comprising the UPPA, Inria and the INRAE is based on high-quality partnerships that focus on the energy and environmental transition. A strategy to meet the challenges

« If we want to participate in galvanising our territory and be at the cutting edge when it comes to energy and environmental issues, we really need to work together more. Partnerships are one of the reasons our project exists », explains Gilles Pijaudier-Cabot, Executive Director of E2S UPPA. Obtaining the I-Site label in 2017 was largely due to the consortium's determination to strengthen its ties with territorial players, the socio-economic fabric and research organisations such as the CNRS which joined E2S UPPA in 2018.

The UPPA draws on its robust experience to create such partnerships. Its research laboratories have long-standing links with partners outside the academic world, and in this respect, ISIFoR, labelled a Carnot Institute since 2011, has played a key role in the field of geo-resources over the past few years. In particular, ISIFoR has contributed to structuring existing partnerships and to boosting the UPPA's turnover by 50% in six years, thanks to joint research initiatives.

« The strategy behind E2S UPPA is a logical continuation of this approach, but opens up to reach out to new disciplines such as social, economic, legal and biological sciences », Gilles Pijaudier-Cabot sums up. « So partnerships are branching out and now include new players from the cooperative sphere (Euralis, Les vignobles du Buzet, etc.), SME (Biarritz Laboratories, LEES, etc.) and mid-cap companies such as Bertin Technologies in Tarnos. The consortium has set itself the aim of increasing its turnover by 50% in four years. A realistic ambition: E2S UPPA currently has around one hundred active partnerships and the turnover has increased by 30% since 2017. »

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This is how many shared laboratories the UPPA takes part in.

The LFCR – the laboratory of complex fluids and their reservoirs –, a mixed research unit with Total and the CNRS; a joint team with Nobatek/INEF4 on architecture and urban physics; the research laboratory for sciences applied to electrical engineering (SAGE), associated with the French Alternative Energies and Atomic Energy Commission (CEA); the laboratory for the study of rheology and adhesion of wound dressings for medical applications (LERAM), in partnership with Urgo; the international laboratory for the molecular mapping of complex matrices (IC2MC), created with the CNRS, l'Université de Rouen, the INSA in Rouen and Total, joined by the Florida State University and SENGAL in 2019, on the storage of gas energies in aquifers, in collaboration with Teréga.

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At the end of 2019, the UPPA had 14 partner chairs.

Over an average period of five years, each chair combines research activities and excellence training thanks to a research team led by a recognised scientist and one or more high-profile partners.

Many areas of research are covered including energy and environmental transitions, architecture and urban physics, CO2 storage, history, cultures and heritage, wave modelling, X-ray imaging, biomimetics, management, structural geology, pulsed power, materials, energy law, etc.



Isabelle Bétremieux

TOTAL : where research and training dovetail

Isabelle Bétremieux, Program Manager for analysis and measurement at Total, gives us all the advantages of the partnership between the Group and the UPPA.

What partnerships exist between Total and the UPPA?

In addition to one-off partnerships, we have also set up structuring partnerships. I'm thinking of the mixed research unit that associates Total, the UPPA and the CNRS: the laboratory of complex fluids and their reservoirs. The LFCR enables us to run targeted scientific projects on exploration & production of course, but also other sectors of activity covered by our Marketing & Services and Refining & Chemicals branches for example. We also share an international joint laboratory for the molecular mapping of complex matrices with the UPPA and other research teams. We are also partners in Chairs at the UPPA in various different areas such as geology, imagery, CO₂ storage and social sciences.

What are the benefits for Total of working with the UPPA?

In addition to sharing a common territory, our areas of R&D overlap. The issues E2S UPPA is concerned by – the energy transition and the environment – are our concern too. The UPPA is one of the few French universities to be working on these topics and is a valuable partner in view of its areas of excellence, i.e. complex fluids, reservoirs and analysis. The UPPA is both a source of expertise and a partner able to commit itself to long-term, sometimes risky projects, focused on fundamental research. The aim is to move forward together, by sharing our competencies and pooling our resources.

And what about training?

We give great importance to training. We always have around twenty PhD and postdoctoral researchers working with us. Beyond the advantages in terms of research, this is also a means of recruitment for us, and we regularly hire researchers from the UPPA. Research and training dovetail to attract new talents. Our teams also sometimes intervene during training sessions, like the summer school Petroleomics Applied to Fuels and BioFuels, backed by the E2S UPPA.

IC2MC : a lab like no other



The joint international laboratory for molecular mapping and complex matrices is one of the flagship partnerships between the UPPA and Total. Inaugurated in 2015 with researchers from the universities of Pau et des Pays de l'Adour (IPREM and LFCR) and Rouen, the INSA in Rouen, the CNRS and Total, the C2MC laboratory took on an international dimension in 2019 with the arrival of Ryan Rodgers and his team from the Florida State University, adding an I to its acronym along the way. The laboratory prepares precise molecular maps of

fossil and plant raw materials used in particular in refining and petrochemistry. Isabelle Bétremieux, a Total representative, emphasises in particular the advantage for her Group of "combining work on complex matrices with the operational aspect of searching for traces of problematic compounds on its fields".

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6 ÉMERGENCE(S) PARTNERS



Jean-Pierre Giannini and Mohamed Amara

The CEA hand in hand with the UPPA

On October 11, 2019, the UPPA and the Military Applications Division of the French Alternative Energies and Atomic Energy Commission (CEA/MAD) signed an agreement to structure and strengthen their common actions.

The firm handshake immortalised on October 11, 2019 between the President of the UPPA, Mohamed Amara, and the Director of the CESTA (the CEA/MAD centre in the Nouvelle-Aquitaine region), Jean-Pierre Giannini, reflects the quality of the relations carefully built up over the years between the two organisations. *"I'm very pleased to see this exemplary working relationship with the UPPA, constructed over the years, being strengthened yet further by the signature of this partnership agreement"*, emphasised the Director of the CEA.

The UPPA and the CEA share a long history of multifaceted exchanges. Examples include the research laboratory for sciences applied to

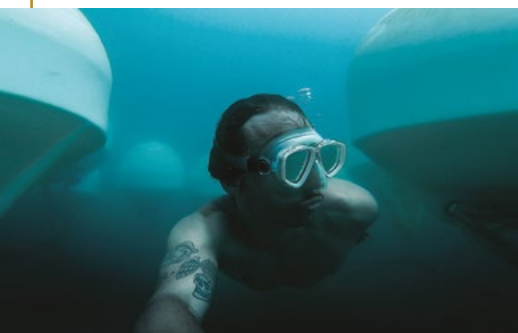
electrical engineering (SAGE) dedicated to physics and pulsed power technologies with the IPRA-SIAME, bilateral collaborations in analytical chemistry and physical-chemistry with the IPREM, collaborative projects with the Inria IPRA-LMAP, CAGIRE and MAGIQUE 3D project teams in physical modelling, numerical simulation and high-performance computing, and with the IPRA-SIAME for safety, security and the environment.

"We complement one another in many different spheres", observes Jeanne Garat, Deputy Director of the CEA/CESTA. *"On the one hand, we have state-of-the-art instruments, competencies and top-level academic teams. On the other, an innovative organisation*

tasked with paving the way to the future by developing applications to serve the major strategic and industrial challenges".

Jeanne Garat also emphasized the importance of the partnership in terms of teaching and training. In particular, the agreement enables the CEA/MAD to take part in training councils at the University and to take on students on internships, either on sandwich courses or to prepare their PhD thesis. It also gives engineers-researchers at the CEA/MAD the opportunity to obtain a doctorate by validation of prior experience or a qualification to direct research. It's a true opportunity for both the CEA and the UPPA.

Emmanuel Poirmeur



LEES : an aromatic partnership

An agronomics engineer, oenologist and wine grower (Egiategia), Emmanuel Poirmeur is working with the UPPA to understand the mechanisms of subsea fermentation.

It's difficult to present the research carried out in the laboratory for subsea entropy studies (LEES) without first going over the processes involved in alcohol fermentation. This key step consists in triggering a chemical reaction between the glucose contained in the grapes and micro-organisms that require oxygen to breath (yeasts). Yeast has effectively found a solution to survive in an air-deprived environment: all it has to do is to absorb the oxygen present in the glucose, thereby expelling CO₂, ethanol and specific aromas. Though the process has been known since the dawn of time, it had never been tested under water.

That's where Emmanuel Poirmeur comes in: *"By plunging twelve control vats under water in the bay at Saint-Jean-de-Luz for three months, I got some very surprising results. The yeasts behaved differently from one vat to the next and in a different way from yeasts on land"*. He created the LEES in 2017 to try and understand the strange phenomenon, extending his work to include other substrates. Emmanuel Poirmeur intends first to measure the impact of the surrounding environment on yeasts (temperature, pressure, salt content, agitation, etc.) and second, the potential influence of the container, using the competencies of one of E2S UPPA's first partnership chairs MARIne maTerials (MANTA), to test vats manufactured using marine polymers.



© Julien Binet



Raise 2024 : the batteries of the future

ES2 UPPA, Saft and Arkema teamed up to work on an ambitious project to develop a revolutionary battery prototype by 2024.

"Batteries are at the core of the current technological revolution. Their development and production play a strategic role in the ongoing transition to clean mobility and green energy systems", explained Ghislain Lescuyer, Managing Director of Saft, in a 2018 press release. Arkema, the leading French chemicals company, acknowledged its long-standing interest in an "all solid-state", battery technology, that some consider a disruptive innovation. More efficient, less expensive and safer than current Li-ion batteries, these new prototypes could revolutionise the electric vehicle and renewable energy storage sectors. In the company webzine, Dominique Plée, Scientific Manager in charge of batteries at Arkema, explains "It involves replacing the liquid electrolyte with a conductive ceramic or polymer plate that would also act as a separator. This technique would reduce the risks of the batteries catching fire, a current problem with liquid lithium-ion

batteries, but would also produce exceptional performances: 600 or even 800 km autonomy, and the charging time reduced to just a few minutes".

The Raise 2024 Hub was created in 2019 as a result of the partnership between the two companies, combined with the ambitions of E2S UPPA regarding the energy transition. Spearheaded by Hervé Martinez, the hub associates two academic research units – the Institute of analytical sciences and physical-chemistry for the environment and materials (IPREM) and Pau Public Law (PDP) – as well as the X-ray imaging centre (D-MEX). Around fifty researchers, PhD students, postdoctoral researchers, engineers and technicians now have five years to collectively design a prototype

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E2S UPPA in step with the priorities of the Nouvelle-Aquitaine region

Gérard Blanchard, Vice-President of the Nouvelle-Aquitaine region, in charge of further education and research. Verbatim.

"The UPPA being awarded the I-Site label thanks to the E2S UPPA project, is a wonderful achievement. It's a major boost for the University, which has managed to mobilise all the local authorities to focus on energy and the environment. The E2S UPPA project has fallen in step with the priorities of the Nouvelle-Aquitaine region as defined in its regional scheme for higher education, research and innovation, adopted in 2018. It develops competencies on topics of the future, to enhance the appeal of the UPPA and give it better international visibility. E2S UPPA also reinforces the links between the academic and socio-economic worlds to provide effective solutions to the many needs of the territory's players. It's the start of a new era, and a process that the region intends to accompany all the way. We are directly contributing to the funding of E2S UPPA by providing some 7.5 million euros over four years, i.e. half the financial support from all the local communities combined. Moreover, we are continuing to help many other research projects that are not necessarily related to E2S UPPA topics. We're also contributing to the acquisition of cutting-edge equipment, such as the instrumental services centre UPPA-Tech, that the region has been supporting for a long time".

Gérard Blanchard



E2S UPPA wants to recruit the best students

Kicked off in 2017 by the UPPA as part of the E2S UPPA project, the Talents Academy aims to attract the most promising third-year Bachelor, Master 1 and Master 2 students, and accompany them towards employment in research.

Just like Harvard, where in 1643, the very first study grants funds were awarded based on academic results, a number of prestigious universities now have a support program dedicated to the recruitment and training of the most talented students. The UPPA's Talents Academy, created as part of the E2S UPPA project, shares the same objective. The best students studying in disciplines related to the scientific areas of the energy and environmental transition are now eligible for an annual allowance, which is allocated solely on the criterion of academic excellence: €6,000 for third-year Bachelor students and €8,000 in Master's 1 or 2. This considerable financial support is intended to enable these students to focus entirely on their studies up to PhD level.

In charge of organising training in E2S UPPA, Eliane Sbrugnera highlights the many advantages of this innovative tool, ultimately designed to grow the University's research potential and visibility: "The Talents Academy contributes both to keeping hold of our best students and encouraging brilliant students from other universities to join us to complete their university studies, thereby reinforcing the UPPA's international presence".

The call for applications is a two-phase process. The first, in the autumn, aimed exclusively at foreign students identified by professors-researchers at the UPPA via the network of partner universities. There are four such places in each of the fifteen masters' courses concerned (chemistry and micro-

biology for the environment, mathematics, sciences and materials engineering, petroleum engineering, geography, law, management, economy, etc.).

The second call for applications, from January to April, is open to all students, whether enrolled at the UPPA, or in a university in France or abroad. The selection is made essentially based on their academic results. A reference letter from their lecturers and the approval from the head of the chosen bachelor's or master's degree course at the UPPA are crucial elements for the application to go through.



Nineteen students already benefitted from a Talents Academy allowance in 2017/2018, forty-six in 2018-2019 and sixty-two in 2019-2020. In the long term, E2S UPPA is hoping to award some 75 allowances every year. The first results are already visible: almost a third of former master's 2 students supported by the Academy are currently preparing their thesis at the UPPA.

What talent!

A student's perspective

The Talents Academy, a source of motivation!

One of the 2018/2019 winners of the Talents Academy, Romain Leduc, 24, is currently preparing a thesis at the UPPA in the laboratory for applied sciences in mechanics and electrical engineering (IPRA-SIAME).



Romain Leduc

How did you apply for the Talents Academy?

My academic path so far has been a winding road. After a scientific sixth form, an STI2D Baccalaureate and a BTS in Electronics, my good results meant that I could continue my studies on the Electrical Engineering and Industrial IT course at the University of Pau. When I completed my Master's 1 course, I finished second in my year and decided to apply to the Talents Academy. My lecturers were right behind me, in particular Marc Rivaletto and Laurent Pécastaing. Then things went very fast. I submitted my application with a reference letter and cover letter, and I received the answer in June for the start of the academic year in September.

What has the allowance changed for you?

I received an allowance of €8,000 in three payments. It's a very sizable sum that has bought me time and freedom. I used to have to work during the holidays to finance my student life: accommodation, food shopping, etc. The allowance has enabled me to have more time to focus on my studies. I no longer have to look for a job with restrictive hours alongside that. It came just at the right time too, because the Master's 2 course includes a six-month internship which would have been difficult to do at the same time as a job to make ends meet. The Talents Academy is also a source of motivation. Having received the allowance, I didn't want to disappoint my lecturers and felt duty bound to achieve good results.

What are you doing currently?

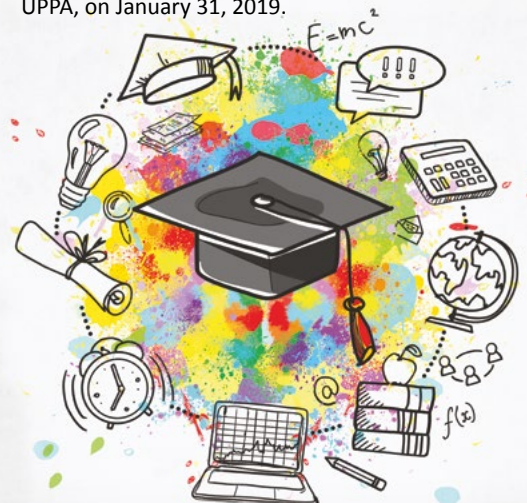
The allowance gave me enough confidence to continue with research, and I'm now in the first year of my PhD. Thanks to the funding from E2S UPPA, I'm preparing my thesis in the IPRA-SIAME, in the laboratory where Laurent Pécastaing is the deputy manager. I'm working on the development of high frequency data conversion systems (SysConHF) for applications in disturbed environments. Robert Ruscassié and Thierry Reess are my doctoral advisors.



Anna Chrostowska and Mohamed Amara

The UPPA wins the Prize for Best Practices

Organised by the French Quality Performance Association, the French Directorate General for Enterprise and Industry, and the MEDEF, the "National Awards for Operational Quality and Excellence" have been given to companies, public organisations and associations in recognition of their customer-focused strategies since 1992. The UPPA's Postgraduate School for exact sciences and applications won the 2019 edition of the "Prize for Best Practices". The jury emphasised in particular the quality of the work done by the University to reduce the duration of its theses from 47 to 31 months, create an ideal PhD and obtain ISO 9001 certification. The trophy was awarded to Anna Chrostowska, Director of the Postgraduate School, and Mohamed Amara, President of the UPPA, on January 31, 2019.





L'EntrePau :

a stepping stone to entrepreneurship

The UPPA offers coaching and support throughout their curriculum students who want to start-up their own company: customised advice, training workshops, equipment availability, raising awareness of entrepreneurship issues, etc.

Unfortunately for Mark Zuckerberg when he created Facebook with three friends from his year group, he wasn't studying at the UPPA... Anachronisms apart, the Pau campus now has an exceptional support and advice platform to accompany students on the road to entrepreneurship. The system is designed for bachelor to PhD students with the national status of student-entrepreneur (SNEE) and for post-graduates having graduated less than three years ago who are now preparing a student-entrepreneur degree (D2E). Jean-François Belmonte, in charge of entrepreneurship actions at the UPPA, is their single point of contact. *"We have a whole range of free and customised services available to UPPA students, whatever their area of study, to help them mature their project and acquire entrepreneurial competencies"*. The EntrePau, a student incubator set up in the Hélioparc technical hub in Pau, is its flagship. This is where Jean-François Belmonte receives, advises and accompanies budding entrepreneurs on a daily basis.

The premises are open 24/7 and include a co-working area and a meeting room for the training workshops given by professionals. Last year, around twenty students took advantage of the customised business coaching system and Abdourahamane Diallo, a PhD student in management sciences at the UPPA, is one of them. With two of his friends, he finally took the plunge by creating Advent'Events in Pau in 2018, an event-planning and communication agency. Alexis Touzaa, a law graduate, has also consolidated his project, picking up the PEPITE prize from the Ministry for Higher Education, Research and Innovation along the way. His start-up, called uCrowd, is currently working with local authorities and businesses on their local strategies. *"They won't all necessarily pursue their projects through to completion", explains Jean-François Belmonte, "but at least we will have helped them acquire skills that will be useful in their professional careers, whether they become entrepreneurs, employees or researchers"*.

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Spring Camp - May 2019



Events all year round

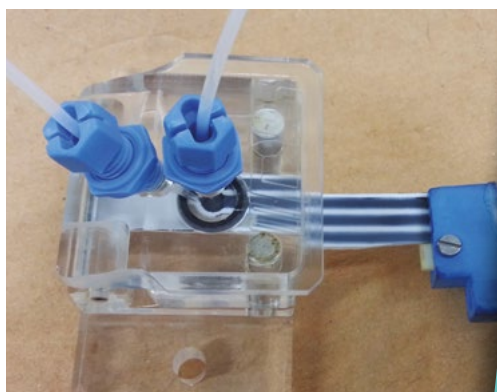
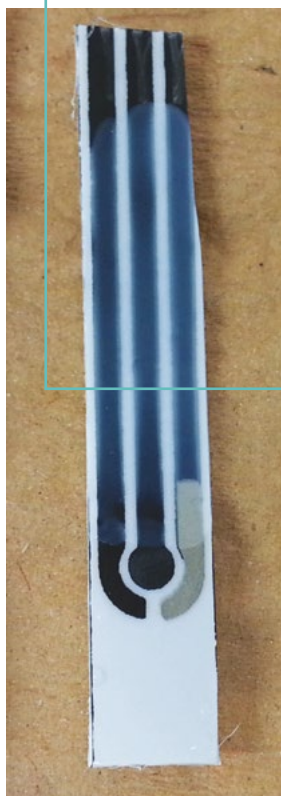
The global action kicked off two years ago to catalyse student entrepreneurship not only includes the EntrePau, dedicated teaching units starting in the first year of their Bachelor's degree, Master's internships, seminars designed for PhD students, but also entertaining events to help students discover entrepreneurship from a different angle. For example, twice a year, the University organises the *Jeud'Innov* in Pau and on the Basque Coast – an Escape Game format that requires students to use their entrepreneurial competencies to solve the puzzles. More than a hundred students took part last year. E2S UPPA also organises a major annual three-day event called '*Spring Camp*' or '*Winter Camp*' depending on the season, where five or six students, researchers or lecturers-researchers present their projects to the participants from all disciplines. Everyone then pitches in to help them develop their objectives. External coaches and speakers (from industry, local authorities, experts, etc.) also come to the camps to give their advice.

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Spring Camp - May 2019

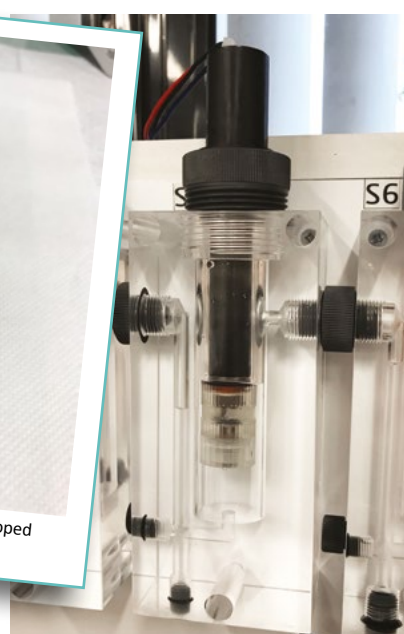
Sensor developed in the laboratory



The same sensor in a system in flux, at laboratory scale



Copper sensor on a bench developed using Syclope



Copper sensor in a measuring system in flux, at industrial scale

Phytocaptor : from an idea to manufacturing

Corinne Parat is a research engineer at the IPREM and is developing a sensor designed to detect the presence of pesticides in water. The project should eventually result in the creation of a company.

Corinne Parat is a geologist by trade and has a PhD in soil pollution. For ten years now, she has been conducting research into the speciation of metals and electrochemistry, and is now a research engineer at the IPREM. Until she attended the 'Entrepreneurship Spring Camp' organised by E2S UPPA in May 2019 in Capbreton, the idea of creating her own company one day had never crossed her mind. *"I signed up for the event almost on an off chance, just to present my research project. In the end, boosted by group emulation, I suddenly had a brainwave. I thought, after all, what do I risk by giving the entrepreneurship adventure a whirl?"*

Winner of the first prize at the E2S UPPA Spring Camp 2019 for her Phytocaptor project, and now accompanied by a coach, the researcher has since embarked on a long-term procedure with the ultimate aim of creating a company. *"I now think in terms of TRL (Technology Readiness Level). It's a nine-stage scale used to evaluate the level of maturity of a technology, from the initial research work, up to application. I'm currently at stage three, the proof of concept, which is just above the level required for a scientific publication".*

The aim is to develop an innovative sensor, about the size of a flashlight, to detect in situ, in real time and for the lowest possible cost, residues of pesticides frequently found in water, such as glyphosate, atrazine and metolachlor. It goes without saying that the environmental stakes are huge.

To ensure the success of her ambitious project, Corinne Parat first needs to modify the work surface of a screen-printed electrode with a biological molecule able to recognise its target. This first step is conducted in collaboration with Novaptech in Bordeaux. The next step will be to make the biosensor a smart sensor and develop software to continuously collect the data. After that comes the industrial manufacturing of the sensors, with the help of a company like Syclope Electronique in Sauvagnon, which has already worked with Corinne Parat to design a metal sensor.

On paper, the business outlooks for the Phytocaptor are just mindboggling. There is currently no other portable instrument for taking measurements on site and in real time. And some 50,000 sites are likely to use this biosensor in the future.

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Verbatim

« Transferring research results is one of the UPPA's aims. Catalysing entrepreneurship, in particular among students, makes the University a main player in boosting the regional economic fabric. I am overjoyed therefore at the decision of the Adour Office for economic development and appeal (BDEA) to award grants of €5,000 and €7,000 to three student entrepreneurs here at the UPPA: Clément BLEUET, Djakaridja KEITA and Antonin LAURENT. I would also like to give a special mention to Antonin Laurent's very promising academic career thus far. He is studying at the UPPA on the "Tools for entrepreneurship" degree course, and supported by the EntrePau, won the PEPITE prize in 2019 for environmental innovation and sustainable development, the Entrep'2019 prize and the regional i-lab prize for his Look UP project for ecoresponsible laptop computer supports.»

Christophe Derail - Vice-President of the UPPA delegated to research partnerships and technological transfer.

Isabelle Chort



“

Isabelle Chort, Welcome to the IUF!

”

The role of the IUF

The French University Institute is tasked with encouraging the development of high-level research in universities, and ramping up interdisciplinarity. Junior member status targets lecturers-researchers under 40 “with high-quality profiles and who are in a creation phase during which they need to be partially relieved of their lecturing duties and certain administrative obligations”.

> www.iufrance.fr

Three questions for Isabelle Chort, member of the CATT (Centre for theoretical analysis and processing of economic data), 2019 winner of the French University Institute as a junior member.

How do you go about becoming a junior member of the IUF?

My application was selected based on a project on migration issues, which is an extension of the research work I have been doing for about ten years now. In 2011, I defended a thesis entitled “Three essays on migration” that focused on the role of migrant networks, in particular in Senegal and in Mexico. After that, I worked for five years at Paris Dauphine, then as a lecturer since 2017 at the UPPA and a member of the CATT, I continued my work on the issue of migration. By making me a junior member, the IUF has given me the opportunity to take my research further.

What does your project actually consist of?

I’ve called it “Family, society and the State: study of the constraints on individual mobility in developing countries”. The aim is to study the geographical and socio-economic mobility of individuals which, in particular in developing countries, is either facilitated or restricted by the legal framework and all the standards and family ties that create the environment in which they evolve. The first part focuses on the impact of election results and restrictive migration policies on incoming and outgoing international migration flows. The second part aims to analyse the impact of the legal framework on women’s socio-economic mobility, via different channels, including marriage, fertility, inheritance, etc. Finally the third part is to explore the links between women’s geographical mobility, induced by marriage, and their socio-economic mobility.

In real terms, what advantages does your new status at the IUF bring?

First and foremost, being a junior member of the IUF gives me time. In addition to the associated research credits, the IUF gives me the advantage of an entitlement to be relieved of two thirds of my lecturing services as from 1st October 2019 for a five-year period. I’m going to be doing exactly what I would have done without the junior membership, except for the fact that instead of spending ten or more years on the project, I’ll be able to complete it in five. It’s a real luxury!

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Gilles Pijaudier-Cabot, winner of the Dolomieu prize

The Academy of Sciences prize award ceremony took place on Tuesday 15th October, 2019 under the dome of the Institut de France. Gilles Pijaudier-Cabot was awarded the Dolomieu prize from the Board of geological and mining research. The prize was created by the BRGM in 1998 and is awarded every year to one or more French or European researchers or engineers, in recognition of remarkable research work in the Earth sciences sphere. Professor at the laboratory of complex fluids and their reservoirs (IPRA-LFCR) at the UPPA, Gilles Pijaudier-Cabot received the award for his work on the rupture and damage of materials.

Gilles Pijaudier-Cabot

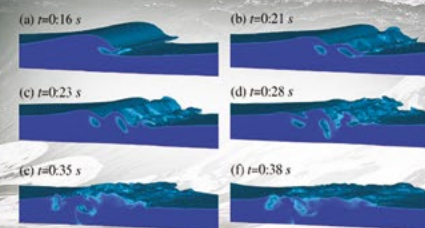


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Volker Roeber

HPC Waves : a chair on the crest of the waves



Volker Roeber, a specialist in digital modelling of waves, has held the HPC waves partnership chair, associated with the IPRA-SIAME laboratory in Anglet, since 2019.

Volker Roeber is an international expert in his sphere. He has a PhD in oceanic engineering from the University of Hawaii and was a lecturer at the International Institute of Disaster Science (IRIDeS) at the University of Tohoku (Japan), where he worked on the catastrophic disasters caused by waves. He is also an affiliated researcher of the oceanographic department at the University of Hawaii.

Hired in January 2019 by E2S UPPA to lead the High Performance Computing of Waves (HPC Waves) chair, Volker Roeber is now assigned to the UPPA's laboratory of engineering sciences applied to mechanics and electrical

engineering (IPRA-SIAME) in Anglet. Spearheading a team that comprises Stéphane Abadie (Director of the IPRA-SIAME), researchers Denis Morichon (UPPA) and Damien Sous (University of Toulon), four PhD students and a post-doctoral researcher, this specialist in the digital modelling of waves now has three to five years to crack the mysteries behind the coastal waves of the Basque coast. An arduous task, led in partnership with the Nouvelle-Aquitaine region, the Basque Country Community and Rivages Pro Tech, a pilot centre of the Suez group installed at the Izarbel technological hub in Bidart.

"We focus on developing reliable and fast numerical models, factoring in the complex physics of the Basque coast, with the aim of working towards the real-time analysis of coastal risks", Volker Roeber explains. His team is also working on potential applications in areas such as forecasting submersion or erosion risks, renewable marine energy systems or coastline protection. In the long term, the installation of a wave flume should serve to validate the models and verify hypotheses.

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Robert Duran obtains a chair in China

Robert Duran, professor at the IPREM, has obtained a five-year chair at the University of geosciences in Beijing as part of the Chinese High Level Foreign Expert program.

Created by the University of geosciences in Beijing, the chair held by Robert Duran, researcher at the IPREM, is an extension of an international research project that began in 2016 between the CNRS and the National Natural Science Foundation of China (NSFC). Coordinated by Robert Duran and Professor Jun Yao of the Chinese University of geosciences in Beijing (Peking), this collaboration focuses on the use of microorganisms for the rehabilitation of sites contaminated by heavy metals and organic compounds in mining areas producing nonferrous metals. The aim is to acquire

sufficient knowledge to use microbial resources to curb the environmental impact of mining waste. *"Our project was coming to a close and Jun Yao, my colleague suggested that I submit my application in 2018 for the High Level Foreign Expert program", recalls the researcher from Pau, specialist in microbial ecology and environmental microbiology. "Beyond continuing our work, this chair is also an opportunity to strengthen ties between the UPPA and China, in particular through exchange programs for junior researchers".*

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Robert Duran

IKER celebrates its 20-year

The Centre for Research on Basque texts and languages (IKER) has become a kingpin in the region and an international reference laboratory.

Even if the origins of Euskara are still shrouded in mystery, studies on the Basque language and texts have made great progress since the creation of the IKER laboratory, just 20 years ago. Installed on the Nive campus, right in the heart of Petit Bayonne, the mixed research unit associating the CNRS, the University of Bordeaux Montaigne and the UPPA, is currently the only structure in France to be conducting linguistic, textual and literary studies dedicated to the Basque language.

"IKER works on Basque, but more generally speaking, on languages as a whole", emphasises its director Urtzi Etxeberria. "Our areas of research broaden as people with different competencies are hired." The work done by Mélanie Jouitteau, a specialist in Breton, French and other Celtic and romance languages is a perfect illustration of this. The workforce has almost doubled in ten years, enabling the laboratory to carry out increasingly ambitious studies.

Among the current projects, two ANR projects stand out from the crowd. The first, called BIM (*Basque in the Making*), groups together specialists in philology and the history of the Basque language, dialectologists, language contact specialists and linguistic theorists. One of its aims is to create an annotated database including the most representative texts produced between the 15th and the first half of the 18th centuries. The second, *Uncovering V2 effects*, a Franco-German project kicked off in 2019 with the University of Konstanz, studies the syntactic phenomenon that consists in placing the verb in the second position in a sentence. Among the strategic projects that are also being explored are the creation of an experimental linguistics laboratory (Babylab) and the creation of a speech therapy school. At 20 years old, the IKER lab is serene, healthy

> www.iker.cnrs.fr



GAZTESARE : Basque made in the social networks

IKER took part in a cross-border study steered by the University of the Basque Country (UPV-EHU) on new multilingual practices of young Basque speakers on the social networks.

In 2019, Irantzu Epelde decided to investigate private conversations on Instagram and Messenger from around thirty young Basque speakers from five campuses in Navarre, Euskadi and Nouvelle-Aquitaine. The IKER research engineer immediately praises the generosity of these students, who accepted to let her have their private messages, in the strictest confidentiality and anonymity of course: *"To begin with, we asked them for the authorisation to access a month of conversations. In the end, most of them gave us their entire conversation history since they opened their accounts, which meant over 24 000 private messages!"* A unique corpus of data that allowed the team of twelve French and Spanish researchers to conduct a linguistic analysis, focusing in particular on the choice of languages and the practices related to the hybridisation phenomena among Basque, its dialects, French, Spanish and English. The results are extremely enriching. Irantzu Epelde noticed in particular, major differences in terms of code switching and mixing languages between students from one side of the border and the other. *"The respective influence of French and Spanish accentuates the differences. Linguistic innovations gradually diverge, giving rise to two variations that are progressively growing apart".*

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Maud Save, an expert in polymer colloids

An expert in polymer chemistry, Maud Save received the distinction of “Pioneering Investigator 2019” from the Polymer Chemistry review.

Maud Save, Research Director for the CNRS at the IPREM, is an expert in at least two areas: polymer chemistry and modesty. Praised by the Polymer Chemistry review, which gives pride of place to the work of mid-career scientists who have a worldwide reputation in the field of polymer chemistry, this specialist in polymer colloids (more commonly known as latex) immediately insists on tempering the significance of this distinction: “My expertise supports the work of Sylvie Lacombe, photochemist at the IPREM. Our work may be innovative, but I don’t consider myself a “pioneering investigator” – to use the title of the scientific review – at all”.

Despite her claims to the contrary, Maud Save has a very impressive background and is currently seconded to the Western Sydney University as part of the “E2S UPPA Ambassadors” program. Co-manager of the “physical-chemistry of surfaces and polymer materials” hub at the

IPREM, the 44 year old researcher is conducting incredible research designed to add new properties to the polymer colloids used in paints, cosmetics or inks for example. “Colloids have a film-forming effect”, she explains. “This is an interesting peculiarity for creating innovative materials. The essence of the challenge is to master the toolbox allowing us to activate properties that meet specific requirements. For example, we can inflate or deflate colloids by acting on temperature, make them extensible and rigid at the same time, make them photoactive so that they will produce singlet oxygen capable of eliminating bacteria or oxidizing pollutants, and so on”. There are boundless possibilities for applications in the industry and in health and environment. And so what is Maud Save’s latest challenge? To succeed in making colloids from biomass instead of hydrocarbons.

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Isabelle Moretti : a breath of fresh hydrogen

Recruited in early 2019 by E2S UPPA, Isabelle Moretti is working on natural hydrogen sources.

Sometimes presented as the philosophers’ stone of energy, hydrogen is still too often extracted from methane producing CO₂ as a waste product. The discovery of substantial native hydrogen streams in the subsurface could however prove to be a game-changer and give it a key role to play in the energy transition. This is one of the many reasons why Isabelle Moretti was recruited by E2S UPPA. Working for the LFCR (Laboratory of complex fluids and their reservoirs) as part of the “Characterization of geological reservoirs” team, Isabelle Moretti is currently initiating a large number of projects related to natural hydrogen sources while helping to fine-tune training for students in the context of the new energy mix. She is a member of the Academy of technologies, and her career at the crossroads between the industrial and research worlds gives her a global perspective of the energy world and the transition in progress. Among other things, she was a researcher at the French Institute of Petroleum and worked as an expert for Total in structural geology and basin modelling, before joining Engie as Scientific Director.

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NEW PORES : a Franco-American team tackle porous materials

Founded with Northwestern University, Chicago, Illinois, NEW PORES is the very first international hub created by E2S UPPA.

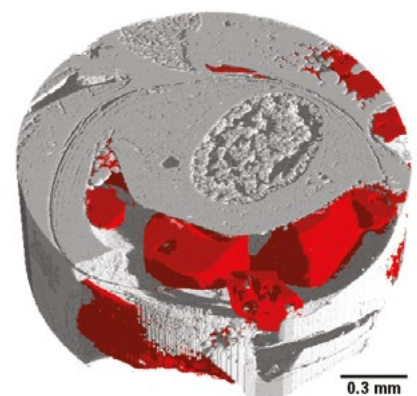
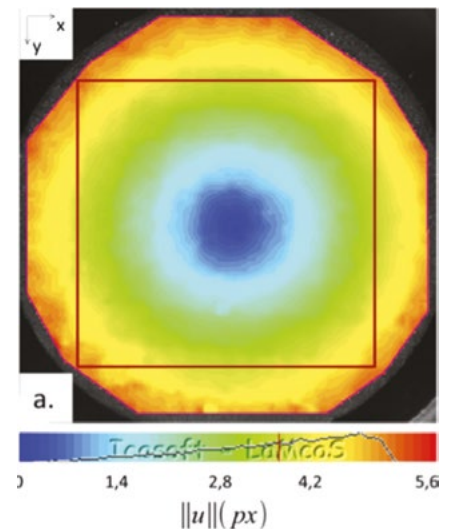
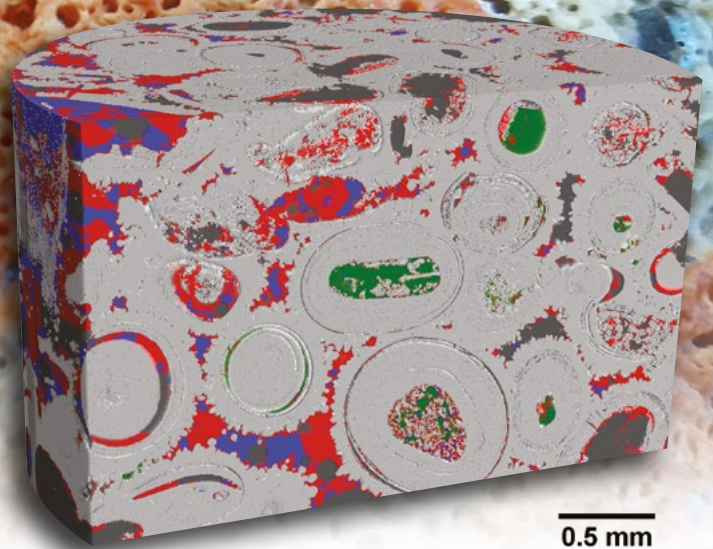
Following the model of the Inria project teams, the thematic hubs are one of the flagship projects of E2S UPPA. Spearheaded by the external scientific board of E2S UPPA, the hubs are composed of accomplished researchers who spend five years working on a scientific programme addressing one of the fields of excellence of the UPPA. For example, MeSMic, the first hub created in 2018 coordinated by the Director of the IPREM, Ryszard Lobinski, is composed of a multi-disciplinary research team that provides an integrated understanding of the presence of metals in the environment. Kicked off in 2019 in partnership with Total, Saft and Arkema, the RAISE hub aims to develop new advanced battery systems [cf. page 7].

The international dimension of NEW PORES (New frontiers in porous materials), also initiated in 2019, sets it apart from the other hubs. Founded with Northwestern University situated on the shores of Lake Michigan (USA), NEW PORES brings together seven of the UPPA's researchers from the Laboratory of complex fluids and their reservoirs (LFCR), five researchers of Northwestern University and over ten PhD students, some of whom are part of a co-tutorship agreement between the two universities. Some Belgian and Spanish scientists might also be called in as research fellows to work on certain subjects.

"NEW PORES' particular focus is the interactions between fluids – hydrocarbons, water, salt, etc. – and solids in porous media. It's a chance for us to boost our research work", exclaims Gilles Pijaudier-Cabot, at the head of the hub, alongside his colleague David Grégoire from the LFCR and the American researcher Gianluca Cusatis. "All the more so that we've managed to enlist Zdeněk Bažant, a professor at Northwestern University considered as one of the world's leading experts in civil engineering and mechanics".

Not only is NEW PORES seeking to develop a general modelling methodology, it also has tangible applications in mind. In terms of durability, the researchers will be looking at the effects of storing CO₂ over time and the necessary safety conditions, as well as the interactions at work in cement materials. Another section will concentrate on designing new porous materials able to store hydrogen in safe conditions, as well as bio-inspired structural and functional materials.

The teams will meet for the first time in July 2020 at Northwestern University. Some of the UPPA's researchers will then make the move to Chicago, while a handful of their American colleagues will settle in the Pyrénées-Atlantiques. Gilles Pijaudier-Cabot has high hopes for this partnership, in terms of the number of high-impact scientific publications and international visibility for the UPPA.



In 2019...



Imaging Summer School

From 1st to 6th September, the LFCR and the DMEX imaging centre of the UPPA hosted an international summer school on X-ray imaging in partnership with the universities of Gand (Belgium) and Utrecht (The Netherlands): the Imaging Summer School 2019 (ISS2019). Supported by E2S UPPA, this international event in Pau attracted experts from all over the world (Australian National University, Imperial College, Lund University, etc.) who came to share their knowledge during the theme-based days. In addition to the conferences on theory, ISS2019 also included a practical section where participants were able to apply the knowledge acquired in exercises and workshops.

> <https://imagingcenter.univ-pau.fr/ISS2019>



Franco-Chinese meetings

From 15th to 26th July, the UPPA hosted a delegation of 35 teachers and students from Sichuan University (SCU, Chengdu, China) in Pau for two events held by

the IPREM and supported by E2S UPPA: a summer school on subjects ranging from energy to biomaterials, and a workshop dedicated to complex fluids, functional polymers, polymer and composite shaping, materials for energy conversion/storage and analytical chemistry. This first joint event between the SCU and E2S UPPA will be followed in 2021 by a second workshop organised by the SCU in Chengdu.

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FraMCoS-X

The international FraMCoS-X (Fracture Mechanics of Concrete and Concrete Structures) conference took place on the Nive campus of the UPPA in Bayonne from 23rd to 26th June. The event is held every three years, and was the tenth edition of a series under the aegis of the international association IA-FraMCoS, chaired by Gilles Pijaudier-Cabot since 2016. The objective of the IA-FraMCoS is to share the most recent advances made with regard to the description of the fracture of concretes and innovative cement-based materials. The conference was backed by E2S UPPA, ISA BTP, Lafarge and ATENA.



> www.framcos.org

The French Hispanists' Society

Organised with the support of the Spanish embassy, the congress of the French Hispanist society is a major event for the scientific community. In 2019, the organisation of the event was entrusted to the ALTER laboratory (arts/languages: transitions & relations) of the UPPA. The conference on the theme of borders was held from 5th to 7th June in Pau and attended by a hundred or so French and foreign researchers. Owing to its multi-disciplinary approach, prestige, size and outreach, the event contributes to strengthening the UPPA's position as a pilot establishment with regard to the issue of cross-border exchanges.

> <http://www.hispanistes.fr>



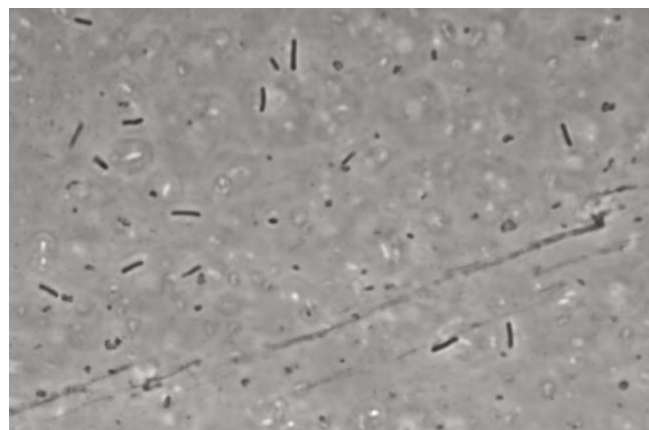
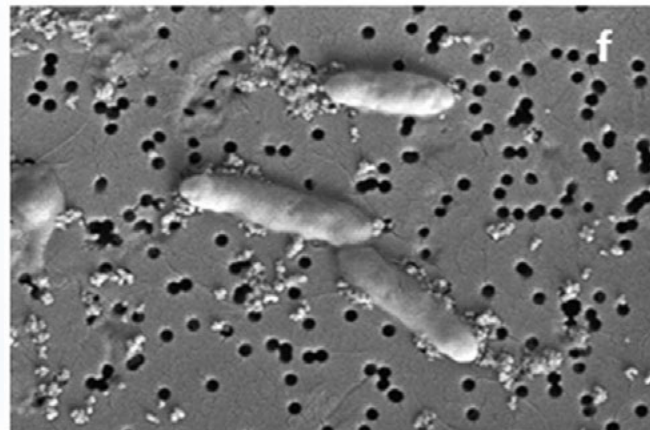
Life underground is pretty rocky

One of the IPREM's studies highlighted, for the very first time, the impact of natural gas storage on certain microorganisms in deep aquifers.

Yes, there is life in deep aquifers! In fact, the discovery is nothing new, but until now, very few researchers had been interested in the behaviour of the microorganisms populating natural storage reservoirs, situated 500 m to 1.2 km below the Earth's surface. *"There are 77 deep-aquifer natural gas storage sites worldwide, and 11 of them are in France"*, Anthony Ranchou-Peyruse, a microbiologist at the IPREM (Institute for analytical sciences and physical-chemistry for the environment and materials) starts by telling us. *"The first site in France was opened in 1956. At that time, we still had no idea whether life was possible at such depths. Since we now know that microorganisms prosper in deep aquifers, the question is how do they interact, if at all, with gases such as methane or hydrogen"*.

In the current context of the energy transition, the issue is all the more important that we are witnessing a certain effervescence with regard to the subsurface storage of large volumes of biomethane and hydrogen. The research carried out since 2015 by the IPREM and PRALaTEP (Heat, energy and processes laboratory) teams in partnership with two French industrialists, Téréga (formerly TIGF) and Storengy (affiliate of ENGIE) is particularly innovative in this respect. It culminated in a noteworthy scientific article published in *Environmental Microbiology** on 17th July 2019.

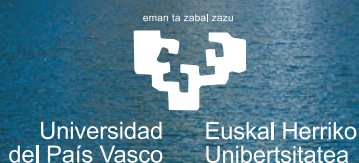
Examples of microorganisms from deep aquifers observed using a scanning electron microscope



The study, called *Geological gas-storage shapes deep life*, focused on two microorganism groups: sulphur-reducing bacteria and methanogens. The former breathe in sulphate and breathe out sulphur, and the latter breathe CO₂ and produce methane. *"Close observation of 30 or so sites in France revealed that these microorganisms have an impact on the composition of the gas stored in the case of a methane-hydrogen mix, as well as on the formation water itself"*, Anthony Ranchou-Peyruse continues. *"Conversely, storing gas also has an effect on microbial diversity, even 50 years after a site has been closed down"*.

The studies have made it possible to accurately measure these effects, while opening up new avenues for producing recyclable methane drawing on the specific properties of these microorganisms. This process is known as in situ biomethanation, a synthesis reaction whereby captured CO₂ and dihydrogen produced by renewable energies generate methane. The RINGS (research into the injection of new gases in storage areas) project, managed in parallel by several of the UPPA's laboratories in partnership with Téréga and Storengy, should soon help to confirm the hypotheses made by reproducing in laboratory conditions the phenomena observed in the field by Anthony Ranchou-Peyruse's team.

* <https://sfamjournals.onlinelibrary.wiley.com/doi/abs/10.1111/1462-2920.14745>



UPPA/UPV, a long-standing history

The UPPA and UPV/EHU (University of the Basque Country) have forged strong ties allowing them to work together on ambitious research projects, particularly on environmental issues.

Created in 1980, the UPV/EHU is a relatively recent public university of the Basque Autonomous Community with campuses in Bilbao, San Sebastián, Vitoria-Gasteiz, Eibar and Leioa. Its motto, taken from a 19th century Basque anthem: "Eman ta zabal zazu" ("Give and distribute [the fruit]"). A boundless motto, as evidenced by the close bonds that have formed over the years between the UPV and the UPPA. French and Spanish researchers across all disciplines have a great number of university exchange programmes and projects in common – in linguistics of course, with the Bayonne research centre on the Basque language and texts (IKER), as well as in sport, history, geography, humanities, physics, biology, chemistry and so on.

Calls for common projects between the UPPA and UPV plus the growing contribution of European funding, FEDER and POCTEFA in particular, and the quality of relations between the Nouvelle-Aquitaine region and the Basque

Autonomous Community were all instrumental in increasing the amount of work carried out in partnership. "Not forgetting the personal connections made over time", adds David Amouroux, CNRS Research Director at the UPPA. A researcher at the IPREM, he represents his laboratory in the MIRA (Aquatic environments and resources) federation. "Most of the environmental research we're conducting today is done in collaboration with researchers of the UPV, but this is not only the result of an academic partnership", he says. "Relationships with our Spanish colleagues date back long before the creation of the MIRA. The story began in the late nineties, when a PhD student from the UPV, Alberto de Diego Rodriguez, joined my team. He then went on to land a job as an adjunct professor in Bilbao. We always stayed in touch. When he became a member of the IbeA laboratory, we saw this as an opportunity to start working on

cross-border projects together. In research, successful international partnerships are very often born from rapprochements that are both scientific and human".

And in fact, the rapprochement between the two universities was inevitable. The UPPA and the UPV share extraordinary natural sites, like the Pyrenees mountains and the Bay of Biscay, long chapters of common history and similar environmental challenges. The REPLIM project that involves creating a network of observatories of eco-systems particularly sensitive to climate change in the Pyrenees is just one example. "In many fields, our laboratories are complementary", also reckons David Amouroux. "Partnerships are a chance for us to pool our competencies and to learn from one another. All the more so that crossborder initiatives, especially environmentally focused ones, represent additional funding opportunities". A word to the wise...

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Pau Droit Énergie firing on all four cylinders



Louis de Fontenelle

Supported by the UPPA's Pau Droit Public research centre, the Pau Droit Énergie consortium concentrates its efforts on societal and legal issues in the energy domain, in keeping with the strategic focuses of the E2S UPPA project: solutions for energy and the environment. The first French public-private consortium founded in late 2016 gathers 15 or so public, socio-economic and academic partners, under the leadership of Philippe Terneyre and Louis de Fontenelle, respectively professor and university lecturer in public law at the UPPA. A privileged partner of the AFDEN (French association for energy law) and the EFELA (European Federation of Energy Law Associations), Pau Droit Énergie has earned the reputation of a key player in Europe owing to the quality of its research on emerging themes of interest.

Subsurface rights

Since July 2018, legal experts of Pau Droit Public and geographers of the UPPA's PASSAGES laboratory have been participating in the GÉFISS project designed to build a knowledge base on governance in the field of subsurface engineering (geothermal energy, energy storage, CO₂ storage, etc.). The project is composed of a multidisciplinary team of experts in social sciences and humanities, geosciences and public consultation, as well as industrial representatives.

Sustainable mobility

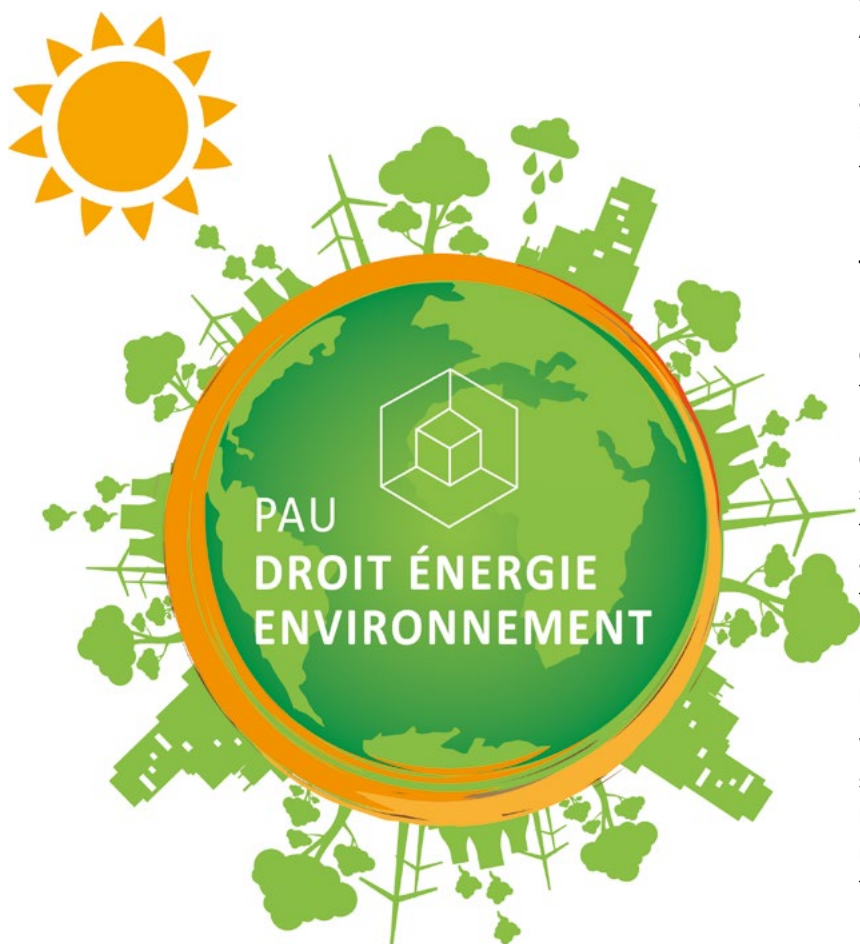
Since November 2019, Louis de Fontenelle has been at the head of the partnership chair, MOVE. EDF, Enedis, Teréga, the Agglomération Pau Béarn Pyrénées, the Energy Union of the Pyrénées-Atlantiques and the Energy Regulatory Commission are all members of the Chair, the aim of which is to focus on the legal issues of sustainable mobility in the context of the energy transition.

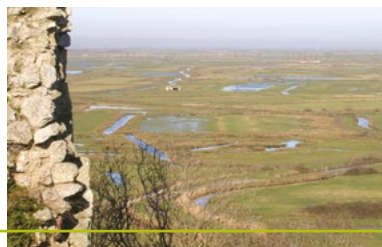
The energy transition and territories

In 2020 Pau Droit Énergie will be kicking off a precursory project called ESIT (Energy sustainable and independent territory) focused on decentralised energy communities. According to the European Commission, these rapidly expanding communities could produce more than 50 GW of wind energy and as much solar energy by 2030. The European elected officials validated the concept in late 2018, but the legal framework is not yet cut and dried: connection to the current grid, the type of contract, the notion of public service and so on.

Market regulation

With Guillaume Dezobry, associate member of Pau Droit Public, a specialist in energy and regulation law, as well as a lawyer in the business law firm Fidal, the consortium addresses issues pertaining to the regulation of energy markets. The partnership takes the form of scientific events. For example, Fidal and Pau Droit Énergie jointly organized the conference "*Valorising the flexibility of demand on electricity markets*", held in June 2019 at La Défense in Paris.





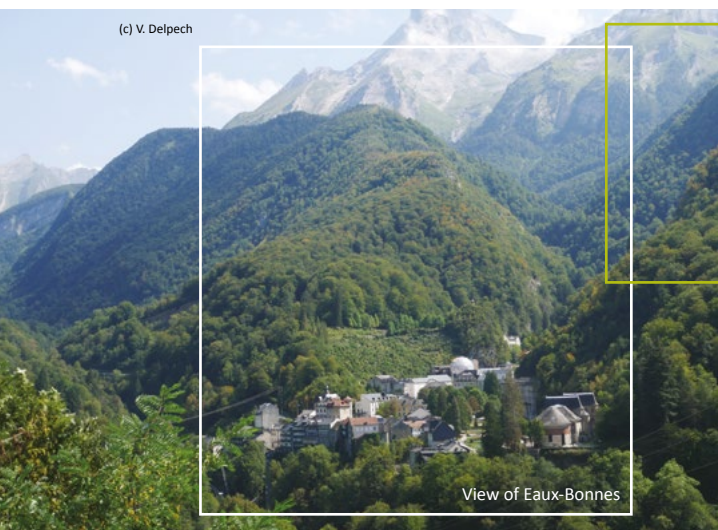
MARGES : meetings in “hostile” lands

The ITEM lab of the UPPA and the LIENSs lab of the University of La Rochelle have been studying ways of life in the marshlands of the Charente coast and the summer pastures of the Pyrenees from the Middle Ages to the present day.

Sometimes qualified as hostile, the marshlands of the Charente coast and the summer pastures of the Pyrenees form unique territories, peripheral areas that have long been considered on the fringes of History. However, recent research has shown that they have been explored, used and inhabited since Prehistoric times. This new paradigm has raised questions about the solutions found by the inhabitants over the years to settle in, live off and inhabit these unwelcoming environments. This is the exact research focus of the MARGES project, kicked off in 2018 by the ITEM (identities, territories, expressions, mobilities) and LIENSs (coastline, environment and societies) laboratories, in partnership with Thierry Sauzeau (CRIHAM/ University of Poitiers).

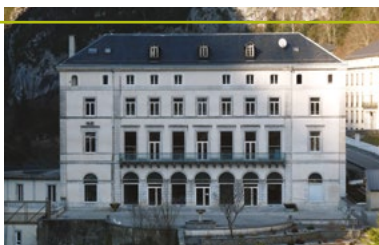
“For several years we have been studying the summer pastures of the Pyrénées-Atlantiques department”, explain Mélanie Le Couédic and Alain Champagne, medievalist archaeologists at the ITEM. “And our colleagues at the LIENSs lab in La Rochelle have been carrying out work on the Charente marshlands. Although these two territories are far apart, each considered in their own way as a marginal natural space, they share many common denominators”. The objective of the MARGES project is to further this research for the next three years, gather knowledge and integrate it into a comparative and multidisciplinary approach including historians, archaeologists, environmentalists and geographers. Three themes have been chosen: the governance of these spaces, constructions and housing, and the transformation of these environments with regard to practices and uses. See you in welcoming lands in 2021?

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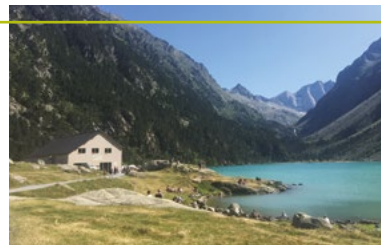


(c) V. Delpech

View of Eaux-Bonnes



Spa in Eaux-Chaudes



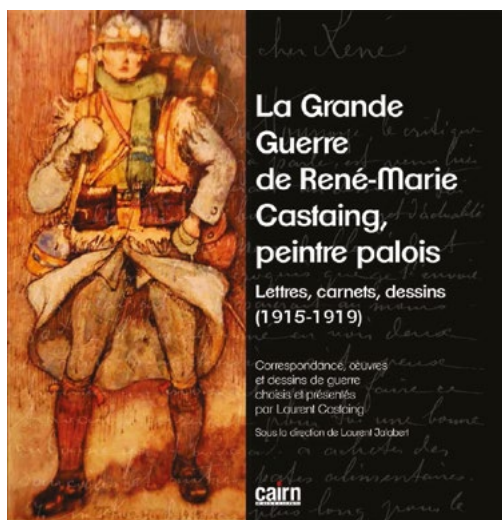
Lac de Gaube in Cauterets

TCV Pyr : an asset for Pyrenean heritage

The ITEM and the LIUPPA are taking part in the TCV Pyr project devoted to the built and non-material cultural heritage of tourist and thermal activities in the Pyrenees.

Kicked off in 2017, the objective of the three-year TCV Pyr programme (balneology, culture and holiday resorts in the Pyrenees) supported by the European fund FEDER allocated to the regions of Nouvelle-Aquitaine and Occitanie, is to list and analyse all the heritage related to balneology and resort tourism on the northern flank of the Pyrenees. A painstaking task conducted by the ITEM laboratory in cooperation with the LIUPPA. Researchers from the University of Toulouse Jean Jaurès – historians (UMR-CNRS FRAMESPA) and geographers (UMR CNRS-GEODE) – and the University of Perpignan (CRESEM) are also taking part in compiling this huge inventory encompassing architecture (thermal baths, casinos, hotels, villas, ski resorts, etc.), landscapes and traditions (fetes, pilgrimages, etc.). “40 or so sites have been identified across the Pyrenees, from Argelès to Cambo-les-Bains”, says Laurent Jalabert, a historian and Director of the ITEM. “In terms of built heritage, our laboratory is focusing on the department of the Pyrénées-Atlantiques and two-thirds of the Hautes-Pyrénées. In Eaux-Bonnes alone we have already listed, analysed, described and photographed more than a hundred buildings”. Each identity sheet is then passed on to the IT engineers of the LIUPPA who are in charge of designing mobile apps to promote this exceptional heritage.

> <http://tcvpyr.iutbayonne.univ-pau.fr>



A painter from Pau in the Great War

Laurent Jalabert (ITEM) was at the head of a team compiling documents dating from 1915 to 1919, tracing back the history of René-Marie Castaing, a young painter from Pau enlisted as a volunteer in the Great War, who recorded his impressions in his notebooks. He filled the pages with realistic drawings reflecting his perception of the conflict, his fellow soldiers, the surrounding landscapes... Along with these notebooks are a collection of letters, sent regularly to his father, mother, brothers and sisters, also filled with pencil sketches that form the bulk of the documents included in this book.

> *The Great War by René-Marie Castaing, a painter from Pau. Letters, notebooks, drawings (1915-1919). Correspondence, works and sketches of the war chosen and presented by Laurent Castaing, under the supervision of Laurent Jalabert. Cairn éditions. April 2019.*



The feminisation of culture

In this book, Maurice Daumas, professor emeritus of modern history at the UPPA, explores the feminisation of culture, an area which has always borne the mark of gender inequality. Male dominance is still very strong in some areas where it seems firmly entrenched, such as language, religion, sexual behaviour, our vision of the past. Over the past centuries though, the tables have gradually started to turn, placing women on a more equal footing. Through a slow process of conquest, they have gained visibility and power. More balanced representations of the relationships between men and women have gradually been taking root. But women's (r)evolution is far from complete, because the idea of complementarity, so important in the previous century, has been relegated to the status of gender bias, one of the worst of its kind, and replaced by the notion of interchangeability.

> *L'irrésistible féminisation de la culture (The irresistible feminisation of culture). Maurice Daumas. PUPPA, EFM collection. July 2019.*



Being a small producer in the wine-growing world

Stéphane Le Bras (CHEC-UCA) and Laurent Jalabert (ITEM) have co-directed a book on the profound changes that have marked the wine sector from the Middle Ages to the present day in France and abroad. Through the prism of small producers, who represent just as valuable an asset as the "large" ones, the authors of this collective work (historians, geographers, economists, sociologists, and wine-growing professionals) seek to identify the qualities, mechanisms, advantages and restrictions of being a "small" producer in the wine-growing world.

> *Être petit dans l'univers vitivinicole. Études et échelles d'un atout (Being a small producer in the winegrowing world. Studies and scales of an asset). Le Bras and Laurent Jalabert. Cairn éditions. February 2019.*

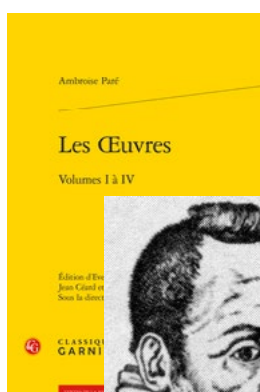
On 17th July 2019 in Geneva, another book by Laurent Jalabert and Stéphane Le Bras published in 2017 by the Éditions Presses Universitaires de Rennes received an award in the History category from the international jury of the International Organisation of Vine and Wine: *Les petits vignobles. Des territoires en question (Moyen Âge-XXI^e s.) (Small vineyards. Territories in question (Middle Ages-21st century).*



The connected family

A lecturer in sociology at the UPPA and a member of the PASSAGES laboratory, Jocelyn Lanchance addresses the issue of digital practices in families. The privacy of the family sphere as we once knew it no longer exists; it has been shattered by the increasing number of screens in households and the possibility of being connected 24/7. On the one hand, the whole child-parent separation experience has been turned upside down, as we can now reach our children at any time, on their way to school or to meet friends. On the other, the intrusion of people from outside the family circle via social networks has disrupted the moments spent together as a family. In a day and age where the norm is to be connected, what's the best way of helping the younger generations navigate the digital world? A useful book, to be read as a family!

> **La famille connectée.** *De la surveillance parentale à la déconnexion des enfants.* (The connected family. From parental surveillance to disconnected kids). Jocelyn Lanchance. Foreword by Daniel Marcelli. Éditions Érès. 2019.



The works of Ambroise Paré

Considered as the father of modern surgery, Ambroise Paré marked the history of medicine by publishing a major scientific study – in French – in the second half of the 16th century. Not only did the first surgeon of King Charles IX conduct key research on the anatomy of the human body and invent instruments such as the scalpel, he was also a great humanist. His work disrupted the hierarchy between medicine and surgery, which until that point had been belittled, and more generally, raised the question of the place of humankind in the universe. Évelyne Berriot-Salvadore, Jean Céard and Guylaine Pineau, a member of the UPPA's ALTER laboratory and a lecturer in 16th century French literature, have compiled his entire literary output and plates, along with an incredible body of notes, in four magnificent 1,000 page volumes. A colossal yet invaluable piece of work!

> **Les œuvres. Ambroise Paré.** Évelyne Berriot-Salvadore (under the direction of), Jean Céard, Guylaine Pineau. Éditions Classiques Garnier. October 2019.



Management challenges

Jacques Jaussaud, a professor at the CATT (Centre for theoretical analysis and processing of economic data), and Bruno Amann, from the University of Toulouse 3, have co-authored a book that examines the cultural and societal challenges faced by organisations on their way to international development. The book is particularly well documented and proposes a detailed analysis of the obstacles encountered by companies going global, and highlights the levers that must be actuated to overcome them. It has three sections: strategic decision-making in multicultural contexts; ethical issues and corporate social responsibility on an international scale; the challenges posed by interculturalism in the daily practices of international management.

> **Les défis culturels et sociétaux du management international.** (The cultural and societal challenges of international management). Co-authored by Bruno Amann and Jacques Jaussaud. Vuibert. May 2019.

Hannelore Derluyn distils all hopes

A graduate in civil engineering from the Catholic University of Louvain and from the Federal Polytechnic School of Zurich, and now a CNRS research fellow at the IPRA-LFCR of the UPPA, Hannelore Derluyn obtained the prestigious ERC Starting Grant in 2019. Funded by the European Research Council (ERC), this grant gives her five years to complete her PRD-Trigger project: Precipitation triggered rock dynamics, the missing mesoscopic link.

So how do you win an ERC Starting Grant?

I think my CV and the originality of the project were the triggers. The jury expects the project to draw on solid competencies acquired previously, but at the same time to break away from the researcher's area of expertise. My research focuses on the damage caused by crystallisation in porous rocks. You still have to be properly prepared for the competitive exam to convince the jury of the originality and relevance of the project.

What is the study focus of the PRD-Trigger project?

Under the effect of water evaporation, a saline solution crystallises. When these salt crystals grow inside a rock, they exert a gradually increasing pressure on the pore walls, which leads to cracking and ruptures. The objective of the PRD-Trigger project is to understand how the salts attack the rocks and identify the parameters at play: temperature, wettability, concentration, and so on. To do so, I'll be working at mesoscopic scale, i.e. at pore network scale, using X-ray tomography.

What are the stakes?

Damage caused by salt crystals in rocks happens everywhere: in stone walls, historic monuments, in eroding cliffs on the coastline, under the ground, etc. Not only is predicting damage probability a scientific challenge, it would also serve to find solutions to fight and manage it. This would open up new avenues of research for the preservation of natural or construction rocks, or for improving CO₂ storage or geothermal production for example.

How did the selection process take place?

I first sent an application form in October 2018, then I was summoned to Brussels in June 2019 to give an oral presentation. That was really the most difficult exercise. I had five minutes and five slides to convince the jury. Fortunately, I had invaluable support from E2S UPPA and the CNRS. First of all, E2S UPPA financed an office to help me complete my application, and the CNRS had my file re-read by the EU cell of its Aquitaine delegation and helped me draw up the draft budget. For the oral exam, the office funded by the E2S UPPA reviewed my presentation and the INSIS institute of the CNRS organised several mock oral exams in Paris to offer me advice and help me go through the motions before the real thing.



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> <https://erc.europa.eu/funding/starting-grants>