



Editorial

The University of Montium (UNITA) is an alliance of European universities that was founded on November 6, 2020. It is focused on teaching, research, innovation, and transfer in emerging fields related to sustainable development and the circular economy. It also aims to address the challenges posed by the New European Bauhaus (NEB) initiative.

In this regard, it should be noted that the Horizon Europe Strategic Plan (2021-2024) defined four key guidelines for investment achievement, the basic objectives of which are intertwined in the NEB initiative, namely: 1. Promoting open strategic autonomy; 2. Restoring Europe's ecosystems and biodiversity; 3. Creating a more resilient, inclusive, and democratic European society; and 4. Making Europe the first circular, climate-neutral, and sustainable economy.

Within the framework of UNITA, UBI has been promoting a multidisciplinary hub dedicated to the Circular Economy (CE), keeping in mind that this is an economic model based on the efficient and sustainable use of natural resources, thereby reducing waste generation and the environmental impact of economic activities. Unlike the linear model of production and consumption, in which resources are harvested, utilized, and discarded, materials in the CE are kept in use through processes of reuse, recycling, repair, and remanufacturing.

CE aims to promote the transition to a more regenerative and low-carbon economy, in which waste is transformed into resources, generating new business and employment opportunities. This circular model contributes to reducing pressure on ecosystems and mitigating climate change by reducing CO₂ emissions.

There are various sustainable incentives that can be put in place to encourage CE, such as:

- Exemption or reduction of taxes on production and income: Firms that use recycled materials or invest in CE technologies are targeted.
- Regulation: Governments can regulate the production and use of sustainable products to encourage CE. This can include creating regulatory frameworks and laws that require the use of recycled materials or encourage the recycling of end-of-life products.
- Creating new markets: Governments can also encourage the creation of new markets for recycled products by creating public procurement programmes for recycled products or education campaigns to encourage the consumption of recycled products.
- Investment funds or green bonds for the CE: Firms that execute socially responsible investment strategies and manufacture sustainable goods, invest in CE technologies, or employ recycled materials in manufacturing processes are the awardees.

João Leitão,
Associate Professor
University of Beira Interior
<https://orcid.org/0000-0002-6229-6148>

Cultural Heritage



Lake Annecy: "Should I stay or should I go?"

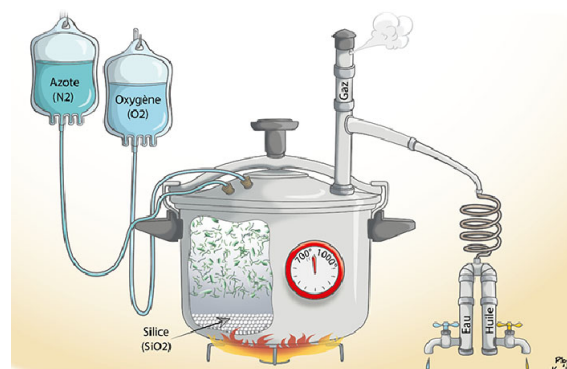
This collaborative research project, led by Roxane Favier, assistant professor in the IREG laboratory, focuses on the phenomenon of overtourism which studies the negative effects of the influx of tourists to over-visited sites, creating environmental tensions and conflicts of use with other users (notably local residents). Applied to the Lake Annecy area, one of Haute-Savoie's remarkable natural sites, the project helps to better understand the issues at stake, the interplay of actions and to propose possible solutions.

Contact: roxane.favier@univ-smb.fr

Link:

<https://www.youtube.com/watch?v=Ux6CAJMLuk0>

Circular Economy

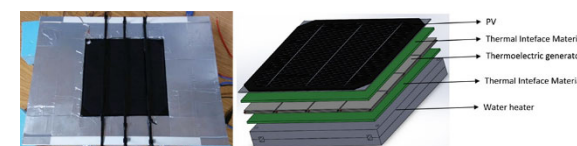


Circuballe

Rice husk is an agricultural residue from rice production that is currently underutilized. It contains a high percentage of silica (15-20%) and due to its low protein content, most of this waste is currently incinerated. After pretreatment and controlled pyrolysis, it is possible to obtain microparticles or nanoparticles (NPs) of SiO₂ with interesting adsorption properties that can be used for various applications and biooil. The Circuballe project aims to overcome the barriers to linking bio-oil production with the production of biogenic NPs with controlled properties.

The Circuballe project, coordinated by Brice Bouyssiere, involves four laboratories at UPPA ([IPREM](#), [LATEP](#), [LFCR](#) and [TREE](#)).

Renewable Energies



PV-TEG-T | Photovoltaic, thermoelectric and thermal solar module

Luís Carvalho Pires

pires@ubi.pt

University of Beira Interior (UBI)

The majority of the solar PV modules available in the market convert to electricity only up to 20% of all incoming solar energy. Most of the solar radiation is converted into heat, which results in a higher operation temperature, leading to lower photovoltaic efficiency. In the case of conventional PV modules, all that thermal energy is wasted to the environment without any useful benefit. The proposed PV-TEG-T solar module combines three different technologies - photovoltaic, thermoelectric and thermal - producing electrical energy by direct conversion in the PV module and harnessing the usual lost thermal energy to provide some more electric production in the thermoelectric generator and hot water supply in the water heater.

PhD student of the month



Hervé Di Domenico

On September 22, Hervé won the 1st “My 3mn-PhD Thesis” competition organized by UNITA, at UPPA. Hervé completed his thesis at USMB in the LIBM laboratory. His thesis, entitled: “Optimization of the physical condition, cognitive abilities and military health during the first weeks of deployment in OPEX”, focused on the effects of heat on the performance and safety of military personnel, in a context of increasing conflict and global warming.

Congratulations!

Contact: herve.didomenico@univ-smb.fr

Woman researcher of the month



Dr. Isabelle Moretti

Université de Pau et des Pays de l'Adour

Member of the French technology academy,
Vice president of the energy pole

Isabelle Moretti is a scientist with a Ph.D. in earth science from Univ Paris XI. She was post doc in Cornell Uni and MIT and then began her career in 1987 at the French Petroleum Institute. She worked in fundamental research but also developed professional software, mainly in structural geology. She intersperses her research and appraisal activities for industry (TOTAL, CEPESA, YPFB) with work for governmental entities (IRD, CNRS, ANR). She wrote more than 150 scientific papers, directed a thirty of PhD's and is giving courses in various universities in France as abroad.

In 2012, Isabelle Moretti moved to ENGIE and became rapidly the scientific director of this company. It that position, she selected the technologies of tomorrow in renewable energies and other emerging markets. She is now mainly back to the academic world and leads a team dedicated to natural hydrogen at UPPA where she works on different case studies. She is also at the board of Earth2 that promotes the natural hydrogen E&P in Europe. Her team of PhD and postdoc got the support of various companies involved in the H2 exploration such as 45-8 and Engie but also of the region Nouvelle Aquitaine.

https://www.academie-technologies.fr/libre_propos/debut-de-lexploration-production-dhydrogene-naturel-une-nouvelle-ere-pour-lhydrogene-tribune-disabelle-moretti/

Lévy, D., V Roche, G Pasquet, V. Combaudon, U Geymond, K Loiseau, I. Moretti, 2023, Natural H2 exploration: tools and workflows to characterize a play, STEP, <https://doi.org/10.2516/stet/2023021>

Highlights

Infrastructure of the Month:

The Optical Center of the University of Beira Interior (COUBI) aims to promote and support scientific and technological research and development (R&D) in the fields of optics and materials characterization and analysis.

The Optical Center is interested and available to receive colleagues from other Universities under a "Job Shadowing" regime, allowing the visitor to follow the sample preparation and analysis process. Available infrastructures: Scanning electronic microscope, and X Rays diffractometer.

More info and contact details:

<https://reunitaresearchinfrastructure.i3a.es/en/node/12>

<https://reunitaresearchinfrastructure.i3a.es/en/node/14>

UNITA PhD International Talent Challenge 2023/2024

As part of Re-UNITA, an international competition was launched to promote an innovative attitude and recognize talent among early-stage researchers. The contest is open to PhD students enrolled in any PhD Program of Re-UNITA Universities.

More info: <https://univ-unita.eu/Sites/unita/en/Evento/1365>.

<https://univ-unita.eu/Sites/unita/en/Evento/1365>.

Registrations are open until 30th of October.

Contact: reunita@univ-pau.fr | Website: <http://univ-unita.eu>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101035810.