



Re-UNITA

# RESEARCH

Newsletter

## Editorial

The Institute of Advanced Environmental Research (<https://icam.uvt.ro/>) was inaugurated within the West University of Timișoara, and represents a complex investment focused on interdisciplinary research related to environmental studies. The main areas of activity consist of the hard sciences - physics, chemistry, biology, geography, mathematics and informatics, alongside an interdisciplinary research direction within a separate department of economics, law and human-environment interaction.

Research activities will be carried out in more than 60 laboratories equipped with state-of-the-art equipment and the the research topics converge with some of UNITA's priority axes such as renewable energies.

<https://www.youtube.com/watch?v=zBpldYAi3s0>

*Octavian Mădălin BUNOIU, Associate Professor, Ph.D,  
Vice-Rector for academic and student affairs*

## Cultural Heritage



### Site of "La Cabañeta"

The University of Zaragoza and the local Council of El Burgo de Ebro have initiated a collaboration agreement aimed at researching and disseminating the cultural and natural heritage of El Burgo de Ebro, highlighting the possibility of continuing the work at the La Cabañeta site. The collaboration on the part of the University will be carried out through the IPH directed by [Concha Lomba](#).

Archaeological work re-started last July - after a decade of interruption - under the direction of IPH researcher [Borja Díaz](#) and archaeologist Alberto Mayayo. The site of La Cabañeta, which houses the remains of a city founded by the Romans in the last third of the 2nd century BC, has aroused the interest of the international community for housing the oldest Roman forum found in the interior of the Iberian Peninsula.

<https://iphunizar.com/actividades/actualidad/el-yacimiento-de-la-cabaneta-alberga-el-foro-romano-mas-antiguo-hallado-en-el-interior-de-la-peninsula-iberica/>

<https://iphunizar.com/actividades/actualidad/el-iph-inicia-una-colaboracion-con-el-ayuntamiento-de-el-burgo-de-ebro-para-trabajar-en-el-yacimiento-de-la-cabaneta/>

## Circular Economy



### Advanced abatement systems for emerging pollutants

One of the research activities at the University of Turin focuses mainly on developing innovative methods for efficient and low-cost water purification. Among the techniques studied by Professor Marco Minella of the Department of Chemistry are processes activated by the interaction of light with matter, such as heterogeneous photocatalysis in which the absorption of light by a semiconductor promotes the formation of strongly oxidising species capable of completely removing these emerging pollutants. In this case, the removal does not take place by transferring the compound from water to another phase, which would then have to be disposed of as special waste, as is the case for example in currently widespread activated carbon filtration processes.

The possibility of completely purifying wastewater (whether industrial or urban) is an essential condition for generating a truly circular water economy where the wastewater produced by all of us can become, thanks to increasingly innovative processes, and new sources.

More info: <http://bit.ly/3vseuK>

## Renewable Energies



"The PNRR i8 "ESCARGOT" project aims at developing new and non-hazardous rare earth based single crystals of high optical quality. Their use is devoted to the development of affordable, green and sustainable technologies. The project is based around a team that brings together ideally complementary skills, ranging from chemical synthesis and crystal growth to versatile physicochemical characterizations and numerical modelling.

This research field contributes to the development of the Centre of Excellence in crystal growth at the WUT with an international outreach.

<http://quasar.physics.uvt.ro/~apopescu/MATREG/labs>

## PhD student of the month



**Julia Guerrero Viu** holds a degree in Computer Engineering from the University of Zaragoza and completed her Master's in Computer Science with specialization in Artificial Intelligence at the University of Freiburg (Germany). In 2021, she joined the Graphics and Imaging Lab at the University of Zaragoza and the Aragon Institute for Engineering Research (I3A), where she is currently pursuing her PhD. Her research is focused on material appearance and visual perception, aiming to bridge the gap between human perception and computational models in order to create more realistic, intuitive and accessible experiences.

She has received different recognitions for her academic excellence, leadership, and social impact in raising visibility of women in STEM, such as the Google EMEA Women Techmakers Scholarship in 2019, the WONNOWN Award in 2021, and the WiGRAPH Rising Stars in 2023. She is an active member of AMIT (recently joined the association board in AMIT-Aragon) and participates in several initiatives aiming to close the gender gap in science and technology, such as "Una ingeniera en cada cole", Girls' Day, Technovation Girls, 11F, and the mentoring program from Re-UNITA.

<https://webdiis.unizar.es/~juliagv/>

## Woman researcher of the month



**Gloria Berlier** is Full Professor in Physical Chemistry at the University of Turin. She is the coordinator of the MSCA-ITN project CHASS: 'Cu-CHA zeolite-based catalysts for the selective catalytic reduction of NOx in exhaust diesel gas: addressing the issue of Sulfur Stability'. She has worked as post-doctoral research assistant at the Davy Faraday Research Laboratories of the Royal Institution in London. Among her research topics, she has been mainly concerned with the characterization of heterogeneous catalysts, focusing on the structure and reactivity of surface sites for applications ranging from environmental catalysis to prebiotic chemistry. Her experimental approach involves in situ and operando optical spectroscopies, electronic microscopy and structural techniques.

Website: <https://www.chass-itn-project.eu/>

## Highlights

Following the annual tradition, six awards were given at the UVT Awards Gala (10.11.2023), that reflect the scientific excellence of the members of the academic community from the West University of Timișoara in the fields of sciences, arts and sports, as well as the services brought to the university by other personalities or institutions. Four special awards were also given, for their contribution to the implementation of UVT policies and the contribution in increasing the WUT's national and international prestige.

The full list of winners can be found [here](#).

The **Re-UNITA Open Innovation Award Ceremony** was held on 20 December 2023, and 4 projects have been awarded.

More [info](#)

### INFRASTRUCTURE OF THE MONTH

#### Research Center for Material Physics and Renewable Energies (MATREG)

(MATREG) aims to address a number of physical aspects of energy production and consumption in order to increase the efficiency across the energy chain. Thus, the center proposes to address the following research directions:

- Optimizing the growth processes of energy-intensive materials such as multicrystalline silicon for photovoltaic applications, rare earths doped fluoride to be used as laser materials
- Obtaining new materials with energy relevance (with laser and LED applications)
- Numerical modeling of crystal growth processes
- Developing techniques for controlling the flow of a melt by means of electric and magnetic fields
- Theoretical modeling of solar cells
- Systematic monitoring of solar radiation on oriented surfaces

<http://quasar.physics.uvt.ro/~apopescu/MATREG/labs>

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