

UNESCO UNITWIN Network

**Innovative, Sustainable and Clean
Energy Research and Education**

Presenting author: Prof. Dr. Teresa J. Leo



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- UNESCO Chair on Innovative Sustainable Clean Energy Research and Education at the University of Genoa, Italy
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Universidad Politécnica de Madrid (UPM)



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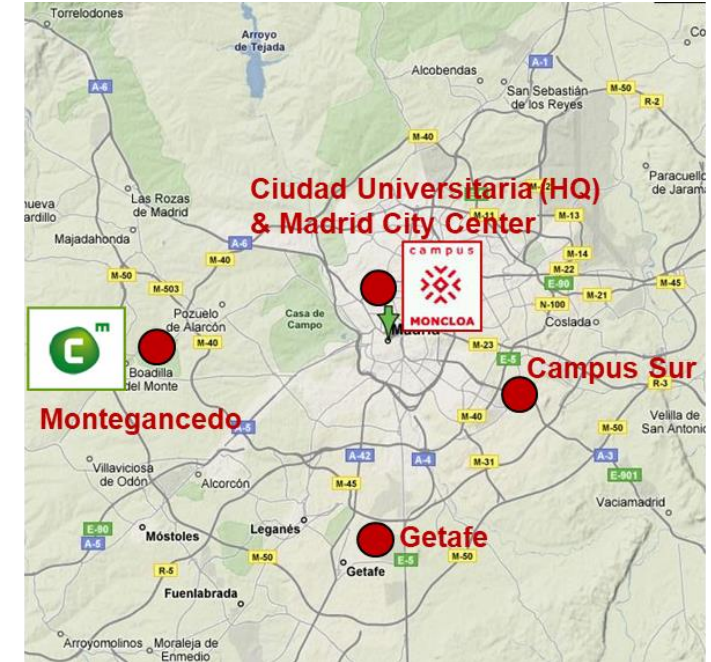
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- Main technological University in Spain
- 5 Campuses in Madrid Area
- 2 International Excellence Campus
- Source of high impact knowledge. In Spain:
 - N°1 university in patent applications
 - N°1 university in attracting R&D European funds (+100M€ H2020)
 - N°1 in attracting R&D contracts with industry
 - N°1 new technology ventures creation
- 16 Schools
- 200 Research Groups
- Over 36.000 students (Bc, Ms, PhD)



HR EXCELLENCE IN RESEARCH

- ✓ 52 Bachelor Degrees
- ✓ 67 Master Degrees
- ✓ 44 Doctoral Programmes
- ✓ 94 Double degree agreements with foreign universities
- ✓ 18 Undergraduate + Master Joint Programmes
- ✓ 123 University-Specific Programmes

Research Groups Involved



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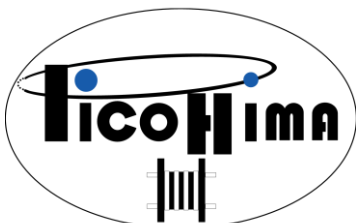
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GRUPO DE INVESTIGACIÓN



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Group of Fuel Cells, Hydrogen Technology and Alternative Engines (PICOHIMA)

Research and testing of fuel cell components, design and development of stacks. Studies for the integration of fuel cell systems in marine and aerial crafts. Hydrogen production from Marine Renewable Energies. Hydrogen transportation at sea.



Contact: [Professor Teresa J. Leo](#)



Group of Modelization of Energy Systems (GIT)

Analysis of thermal energy systems, including HVAC, liquid metal energy systems and solar thermal energy.



Contact: [Professor Alberto Abanades](#)



GA
ETSIA
UPM



Contact: [Dr. Laura Sanguino](#)

European Research Projects



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Smart and local renewable Energy DISTRICT heating and cooling solutions for sustainable living



Application of Solar Thermal Energies to Processes



greEN Energy hUBs for local integrated energy communities optimization



Towards a more efficient exploitation of on-shore and urban wind energy resources



Hybrid Photovoltaics for Efficiency Record using Optical technology



AURORA: Achieving a new European Energy Awareness.

Mission of the institution / research areas



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✓ Research interest/topics

Broad interests related to clean energy and sustainability within the UPM, ranging from alternative fuels and engines, renewable energy sources, energy storage, applied research in buildings and transport, energetic solutions in agriculture, social implications of the energy transition, developing skills, and a large etc. Research on hydrogen technologies has become an area of strategic interest for the UPM.

✓ Sustainability

In 2018, the UPM created an [environmental sustainability plan](#) to achieve the climate neutrality of the campus by 2030. Likewise, the UPM has developed a strategy to align its research and teaching activities to the SDGs, to enforce this [a network](#) has been created across Schools actively involved in achieving these objectives. UPM works on environmental, social and economic sustainability with an open approach, involving students, professors and researchers.



Sostenibles



Mission of the institution / research areas



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✓ Education

The UPM counts with several education programs on sustainable energy, from bachelor's degrees, to masters and doctorate programs. Here are some links to some of them:

- [Bachelor's Degree in Energy Engineering](#)
- [MSc Energy Efficiency in Building, Industry and Transportation](#)
- [MSc Energy Engineering](#)
- [MSc Renewable Energies and Environment](#)
- [PhD in Sustainable, Nuclear and Renewable Energy](#)

✓ Projects on sustainability



ICT-enabled
integration facilitator
and life rebuilding guidance

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