Research on Renewable Energy and Sustainability

Logo

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LAB

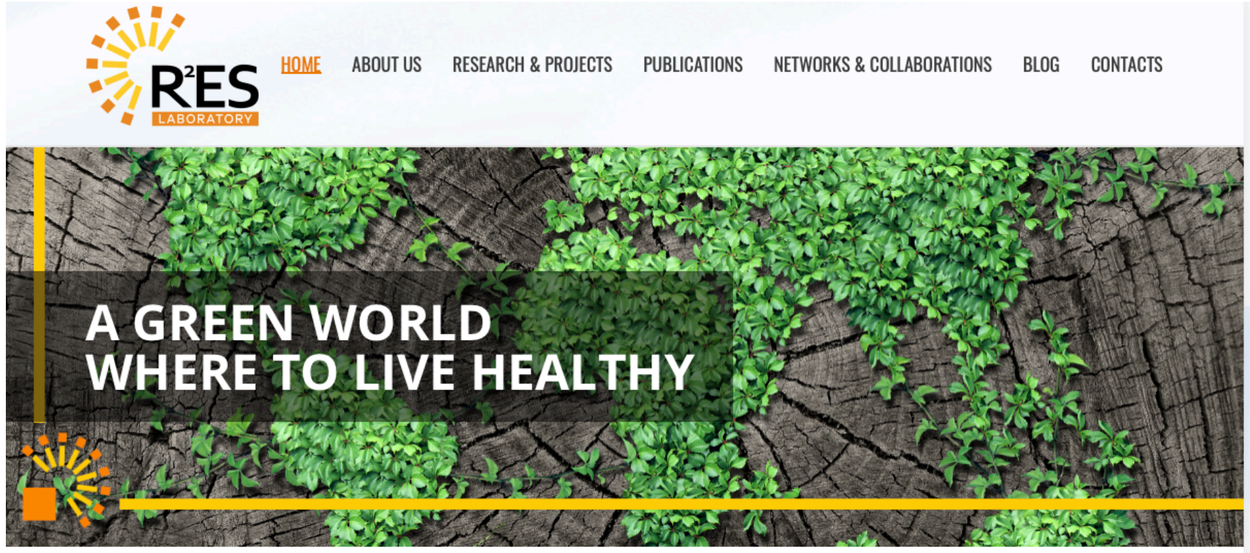
R²ES LABORATORY

R²ES Lab, Research on Renewable Energy and Sustainability

Research activity

The research activity of the R²ES group (Research on Renewable Energy and Sustainability, https://www.r2eslab.com), which boasts collaborations with both national and international research laboratories and companies, demonstrated by numerous publications in international high impact scientific journals, focuses on the design and characterization of new sensitizers for **innovative energy conversion systems from renewable sources** and for **hydrogen production**. It also deals with the evaluation of the sustainability of advanced materials and innovative technologies for the conversion of energy from renewable sources and **energy storage systems.**

Images



R²ES Lab: Research on Renewable Energy and Sustainability

The R²ES group can give support to the development of research projects implementing:

- **Multi-Scale Life Cycle Impact Analysis**
  Calculation of environmental footprint of products and processes
- **Eco-Design**
  Development of eco-friendly and value-added materials/processes
- **Resource Efficiency Assessment**
  Sustainable use of critical raw materials
- **In Silico Design**
  Novel efficient materials for photovoltaic applications

R²ES lab research group has wide **international scientific experience** in various fields of **physical and organic chemistry**, especially for **environmental applications**.

The group has developed a robust expertise that goes from **computational chemistry** to **Life Cycle Assessment** (LCA) **studies of energy systems.**

Main fields of application concern **renewable energy conversion systems**, with a focus on innovative materials/processes and emerging technologies.

https://www.r2eslab.com

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Follow us on:

Technologies and services

LifeCARES
RENEWABLE ENERGY AND SUSTAINABILITY

The LifeCARES s.r.l. business project (https://www.lifecares.unisi.it/it/), born as a spin-off of the University of Siena in January 2020, stems from the willingness of the R2ES Lab (Research on Renewable Energy and Sustainability) research group to enhance their knowledge and experience gained in research on the topics of chemistry and the sustainability of energy systems. Energy production and management is the reference industrial sector for LifeCARES, and involves small, medium and large private companies and public administrations.

ENVIRONMENTAL FOOTPRINT **ECO-DESIGN** **CARBON FOOTPRINT**

CERTIFICATIONS AND ENVIRONMENTAL LABELS

LIFE CYCLE COSTING **ENVIRONMENTAL COMMUNICATION** **CUSTOMIZED SOLUTIONS**

Applications and collaborations

The R²ES group (Research on Renewable Energy and Sustainability), in collaboration with LifeCARES s.r.l., can boast collaborations/partnerships/customers:

CHOSE – Centre for Hybrid and Organic Solar Energy of Regione Lazio, center of excellence in the new generation photovoltaic sector;

Greatcell Solar Italia, Greatcell Energy group (www.greatcellenergy.com), world leader in the innovative photovoltaic sector;

Sorgenia (www.sorgenia.it), one of the main Italian energy operators;

Essity, leading company in the Personal Care, Tissue and Professional Hygiene sectors;

Earthwach Europe, leading company in Citizen Science;

Artes4.0, Competence Center Industry 4.0 within “Advanced Robotics and enabling digital TEchnologies & Systems 4.0”;

Acquedotto del Fiora S.p.A, Integrated Water Service Manager

Alce Nero S.p.a., leading cooperative company in the organic products sector

Eurac Research, leading research center in the energy transition sector

LifeCARES was a partner of the POR FESR TOSCANA 2014–2020 project: “Advanced solutions for the management and recovery of material in waste water treatment plants (IDRO.SMART)”, project leader Publiacqua, 2021-2023.

For more information

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For more information

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Logo

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