

# REMAP

MICROFABRICATION • PHOTOVOLTAIC SOLAR ENERGY

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## WHAT IS REMAP?

The REMAP project aims to revolutionize the field of surface patterning by developing an eco-friendly and efficient method based on magnetic masks, enabling high-quality patterning at scale useful for green technologies like photovoltaics and lab-on-a-chip biomedicine, with a goal to introduce a new paradigm in microfabrication and advance key enabling technologies.

REMAP draws on the extensive experience and knowledge of seven partner entities across five European Union countries. The partners involved include: Università di Genova and RINA from Italy, Centre National de la Recherche Scientifique and Solvionic from France, International Iberian Nanotechnology Laboratory from Portugal, National Center for Scientific Research "Demokritos" from Greece, and the Université du Luxembourg from Luxembourg.

## WHO WE ARE?

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### CONSORTIUM

- Università di Genova,
- International Iberian
- Nanotechnology Laboratory, Centre National de la Recherche Scientifique,
  - Solvionic,
- National Center for Scientific Research "Demokritos",
- Université du Luxembourg,
  - RINA

FIND OUT MORE

<https://re-map.eu/>

# PROJECT ACTIVITY

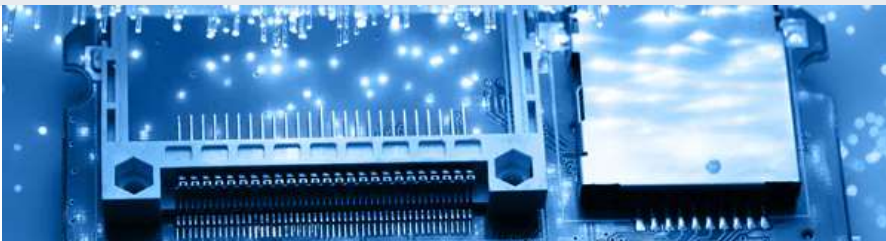
REMAP will achieve its goals through a close interaction between experts belonging to very diverse disciplines. Our key ingredients are what we call *magnetorheological electrolytes* (MRE), which require profound knowledge spanning from pure and applied chemistry (organic functionalization, click-chemistry, inorganic magnetic nanoparticles synthesis, ionic liquids, chemical non-linearity), to soft matter physics (colloidal science, rheology and magnetic fluids). We will manipulate the MRE with a remote controller, to fabricate which we need state-of-the-art facilities and expertise in micro-fabrication, solid state magnetism, and electrical engineering.

We will build a micropatterned photovoltaics proof of concept, which involves know-how in mechanical engineering, electroplating, reactive annealing and semiconductor PV technology.

Lastly, to ensure an effective pathway to impact we deploy in-depth knowledge in IP, economics, business and policy, as well as soft skills on inclusive innovation and teaching strategies.

Work packages:

1. Chemical formulation of magnetorheological electrolytes (MREs)
2. Microfabrication of the device that manipulates remotely the MREs
3. Demonstration of reusable mask patterning
4. Valorization of REMAP's intellectual property and outreach activities
5. Overall management of REMAP and scientific dissemination of research output

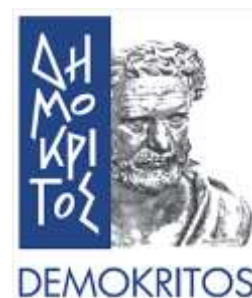


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## Partners



Università  
di Genova



Funded by  
the European Union

# NEWS

11/02/2023

REMAP's Coordinator, Diego Colombara presented new evidence on CIGS technology and REMAP's innovation on microconcentrator solar cells, aimed at reducing critical raw materials and enabling efficient CIGS panels in Valencia.

18/03/2022

Smart Magnetic Nanofluids colloquium took place in Genova and it was organized by UniGe/CNR group. It included a lecture by Prof. G. Friedman on magnetic nanoparticle micro-robotics and multiple talks by national experts in the field.

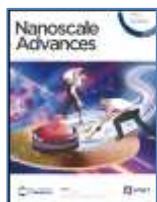


05/07/2022

REMAP's member Sascha Sadewasser presents REMAP at "Sustainable Nanofabrication" event in Braga.

[>>> READ MORE](#)

# PUBLICATIONS



[1] Marianna Vasilakaki, et al. "Effect of albumin coating on the magnetic behavior of Mn ferrite nanoclusters."

*Nanoscale Advances*  
[doi:10.1039/d2na00458e](https://doi.org/10.1039/d2na00458e)



[2] Elena H. Sánchez, et al. "Crossover from individual to collective magnetism in dense nanoparticle systems: local anisotropy versus dipolar interactions."

*Small*  
[doi:10.1002/smll.202106762](https://doi.org/10.1002/smll.202106762)

# BRAINSTORMING

Athens, 16-17 April 2023

REMAP's **3<sup>rd</sup> general meeting** has taken place at National Centre for Scientific Research "Demokritos" in wonderful Athens on the 16<sup>th</sup> and 17<sup>th</sup> of April. Plenty of discussions on remarkable achievements and future plans!



# REMAP ON-LINE

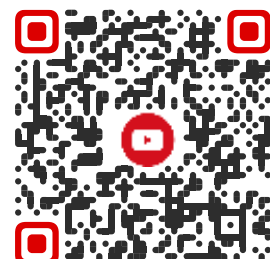
The REMAP project has launched its website and social media accounts to provide updated information about the project to a diverse audience. The website is designed to empower content creators with a simple tool that helps them disseminate their research while collecting structured data. The website is fully accessible and always up to date, with a 96% accessibility score achieved through the MultiguideLine Accessibility and Usability Validation Environment (Mauve). The YouTube channel and LinkedIn profile have also been created to boost networking opportunities and increase the visibility of the project's activities.

<https://re-map.eu/>

FOLLOW US ON SOCIAL MEDIA



LinkedIn



YouTube

# ACHIEVEMENTS

14/07/2022

Andrea Vian - our expert of website design and Professor at UniGe's Department of Architecture and Design - has been awarded the Innovation prize entitled 'Rompiamo gli schemi' (Let's break the frameworks) issued by the Italian Public Administration Forum, for his contributions on redefining the University websites by making use of Artificial Intelligence and Big Data.



## #genderequality

16/02/2023

Equality Diversity and Inclusion for Research Enhancement (EDIRE) project panel discussion: University Gender Policies; Online event

Members of REMAP projects contributed to the EDIRE project panel discussion together with professors from different countries, including Bulgaria, and Bosnia and Herzegovina from the Unige DCCI (Italy) professor Peddis and professor Piccardo.

Useful links:

- [EDIRE panel discussion](#)
- [EDIRE project description on Cordis](#)
- [News on UniGe's departmental website](#)

11/02/2023

REMAP's member participated in an online event organized by Ulysseus European University to celebrate the 2023 International Day of Women and Girls in Science ([watch webinar](#)).

25/01/2023

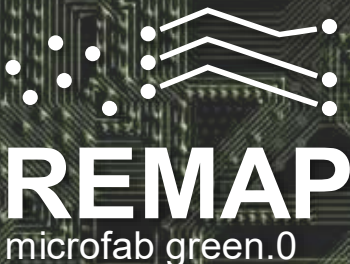
Members of REMAP project participated in an event on the building Gender Equality Plan (GEP): "Gender equality plans and the new universities of the future".

22/09/2022

Rita Bencivenga illustrates the micro-actions initiated by REMAP to promote a gender+ perspective to a conventionally agendered project throughout the project's duration ([read](#)).

12/04/2022

Rita Bencivenga and Diego Colombara contributed to the the Gender Equality Plan of the University of Genova and discussion on its positive actions for the years 2021-2023.



**Are you interested to work with us?**

**Check-out our opening positions:**

<https://re-map.eu/open-positions/>