



New ERC-PoC Project will provide a sustainable alternative to microplastics as whitening agents

ICMAB Researcher Agustín Mihi and his team will develop opacifying agents based on cellulose and algae-based polymers.



Agustín Mihi / ICMAB

Agustín Mihi will receive 150.000 € for the ERC Proof of Concept (PoC) for the project "Cellulose Based Photonic Materials (CELLO)" during the following 18 months.

Microplastics are incredibly small pieces of plastic that degrade the environment and are difficult to recycle. However, they are used in many products as a whitening agent. One example is on personal care products, where microplastics are added to make them white and opaque. Reducing their use is a meaningful way to reduce harm to the planet.

“We propose the use of vegetal cellulose and marine algae-based biopolymers to develop opacifying agents and colorful biocompatible membranes with photonic functionalities for single use”, says ICMAB Researcher Agustín Mihi, PI on the new ERC Proof of Concept (Poc) Project “Cellulose Based Photonic Materials (CELLO)”.

Their alternative to microplastics is based on cellulose, the earth's most abundant biopolymer. Cellulose is also bioresorbable so it will not have a negative impact on the environment. The team will exploit their extensive expertise acquired during the ERC-StG ENLIGHTMENT project in photonic architectures to engineer scattering inks from nanocellulosic and seaweed materials.



Agustín Mihi received an ERC Starting Grant for the ENLIGHTMENT project on 2015 in which he has developed photonic structures for controlling the propagation of light in emerging technologies such as solar cells, sensors and the next generation of LEDs.

Beyond this application, Agustín Mihi has further plans for this material: “In addition, we would like to demonstrate the potential for photonics that cellulose derivatives present through the development of “smart paper” based thin films.” Applying inexpensive and scalable patterning processes, researchers can give cellulose membranes different optical functionalities, like sensing properties or anti-reflecting ones. This optical functionalities will open up a new range of emerging applications for cellulose materials.

This CELLO project has received a Proof of Concept grant from the European Research Council (ERC) as part of the EU's research and innovation programme, Horizon Europe. This is a solid opportunity to bring this research to industrial applications, according to a recent survey that shows 50 % of ERC funded PoC grantees engage in Knowledge Transfer activities or other business ventures.

“It’s wonderful to see that frontier research has the capacity to generate discoveries that can be quickly put into practice. Let’s not forget that there is no applied research without basic research feeding the pipeline first - and that very valuable innovations spring from all disciplines, from the physical and life sciences to the social sciences and humanities” says President of the European Research Council Prof. Maria Leptin.

[About ERC Poc 2021 results](#)

[166 researchers \(48 female, 29 %\)](#) funded by the European Research Council (ERC) have won Proof of Concept Grants. Worth €150,000 each, this top-up funding will help them bridge the gap between the results of their pioneering research and the early phases of its commercialisation. The grants are part of the EU's research and innovation programme, Horizon Europe.

Across the board, in 2021, 348 Proof of Concept proposals were evaluated, with an overall success rate of 48 %. This compares to a total success rate of 32 % in the previous year when applicants submitted more proposals. The same amount of funding was available both years.

The new grants were awarded to researchers working in Austria (7 grants), Belgium (5), Czechia (1), Cyprus (1), Denmark (4), Germany (13), Greece (1), Finland (3), France (15), Iceland (1), Ireland (6), Israel (18), Italy (21), Luxembourg (1), the Netherlands (16), Norway (1), Portugal (4), Slovenia (1), Spain (18), Sweden (7), and the UK (22).

Another ERC-PoC Grant Call is approaching, with a **deadline on 15 February 2022!** If you have received an ERC Starting, Consolidator, Advanced or Synergy grant in the past, [consider applying](#) for an ERC PoC Grant.



About the ERC

The ERC, set up by the European Union in 2007, is the premier European funding organization for excellent frontier research. It funds creative researchers of any nationality and age, to run projects based across Europe. The ERC offers four main grant schemes: Starting Grants, Consolidator Grants, Advanced Grants and Synergy Grants. The ERC is led by an independent governing body, the Scientific Council. Since 1 November 2021, Maria Leptin is the President of the ERC. The overall ERC budget from 2021 to 2027 is more than €16 billion, as part of the Horizon Europe programme, under the responsibility of the European Commissioner for Innovation, Research, Culture, Education and Youth, Mariya Gabriel.

More information

- [ERC PoC grant results 2021](#)
- [Full list of ERC Poc researchers granted in the 2021 call](#)
- [ENLIGHTMENT Project](#)
- [NANOPTO Group](#)