

PROJECT CODE: H2020-MSCA-ITN-2019-860006

CALL: H2020-MSCA-ITN-2019

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PRINCIPAL INVESTIGATOR: MARÍA DE LAS MERCEDES SÁNCHEZ MORENO

Researcher Suelen Da Rocha, whose work is directed by University of Córdoba professors Mercedes Sánchez and Luis Sánchez, has succeeded in developing cement-based grout with new functionalities, something achieved over the course of her work on her doctoral thesis, within the framework of the European SMARTINCS project, which seeks to generate grout with an enhanced crack-filling capacity, as well as the automatic protection of beams in concrete against corrosion.

The UCO participates in SMARTINCS, a project for the training of research personnel prepared to incorporate new technologies and materials into the Construction sector

In addition to these two objectives, there is the task of integrating into this mass, composed of water, cement and sand, a series of special additives boasting novel functions and properties, so as to prevent the growth of fungi in the cement-base joints in which it is incorporated. Among these additives are double lamellar hydroxides with an anti-corrosive capacity to facilitate the automatic protection of reinforcements and the automatic cleaning of the material itself.

Da Rocha is one of the members of the European SMARTINCS project that aims to train 15 students through the completion of their doctoral theses in different European institutions, around a common theme: the automatic healing of concrete.

This project is a Marie Skłodowska-Curie Innovative Training Networks (ITN) action coordinated by the University of Ghent in which UCO participates as a beneficiary entity.

SMARTINCS, which is currently halfway to completion, has as its final objective training highly qualified researchers to do work specifically related to the Construction sector, which they hope to join as professionals as soon as they finish their doctoral theses. Thus, theoretical training and basic research go hand in hand with actions at different companies that are collaborating with the initiative, promoting the practical application of the advances made.

The implementation of the research done at universities and research centers, as well as the creation of synergies with the business world, is, thus, a palpable reality in the SMARTINCS project.

The origins of SMARTINCS lie in the COST SARCOS action led by UCO researcher Mercedes Sanchez

The application of the knowledge acquired by the 15 members of the European project takes the form of direct contact with companies. In fact, in addition to the supervisors at each academic institution and research center involved in the project, the students in training have 'industrial mentors.' In the case of the Córdoba initiative, the mentor



is a member of the crystalline additives company Penetron.

The origins of SMARTINCS are to be found in the COST CA15202 SARCOS action, led by Professor Sanchez, who is also the supervisor of Da Rocha's doctoral thesis. Sarcos, as she explains, "unifies different groups of European researchers dedicated to the study of new materials and the application of technologies to improve efficiency and sustainability in the preventive repair of concrete."

Being part of this project has been, for this UCO team, a great opportunity to work together with European experts on self-healing concrete, which is allowing them "to stand on the cutting edge in the application of innovative methodologies and procedures, as well as to incorporate novel technologies that it would otherwise be difficult to access."

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