

## PARTICIPATING COUNTRIES

### **COST Countries**

Belgium, Czech Republic, Denmark, Estonia, France, FYR Macedonia, Germany, Greece, Hungary, Israel, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Serbia, Slovenia, Spain, United Kingdom

### **International Partner Countries**

Canada

### **COST**

COST (European Cooperation in Science and Technology) is a pan-European intergovernmental framework. Its mission is to enable breakthrough scientific and technological developments leading to new concepts and products and thereby contribute to strengthening Europe's research and innovation capacities.

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ADVANCING THE  
IMPLEMENTATION OF  
**INNOVATIVE AND SUSTAINABLE**  
SOLUTIONS FOR EXTENDING THE  
SERVICE LIFE OF **CONCRETE**  
**STRUCTURES**



COST is supported by the  
EU Framework Programme  
Horizon 2020



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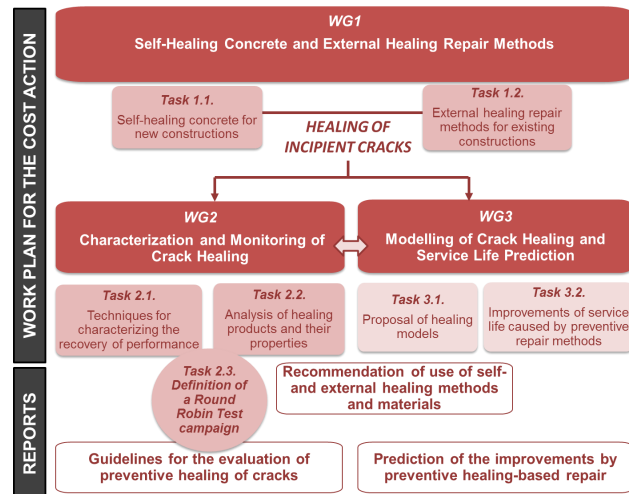
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## MOTIVATION AND OBJECTIVES

The appearance of small cracks in concrete is unavoidable, these accelerate degradation and diminish the service life and sustainability of structures. This loss of performance and functionality results in increased maintenance costs and/or the need for repair, strengthening or replacement. The importance of this problem is signified by its inclusion in the priority challenges of the European Research Programme.

Preventive repair solutions should be adopted both for new construction, by embedding self-healing capability, and for existing structures, by external repair methods such as the use of compatible "healing promoter additives". These preventive repair solutions aim to extend the service life of structures without the loss of performance.

The SARCOS Action deals with these new concepts and advanced solutions, from the design of smart "healing promoter additives" to the definition of standards for performance evaluation. The work of SARCOS will involve scientific breakthroughs and the promotion of international and interdisciplinary collaborations to provide a solid framework for the implementation of innovative solutions for extending the service life of concrete structures.



## ACTIVITIES

We offer opportunities to publish and present ongoing research as well as to network and participate in the general activities of our Working Groups including Meetings, STSMs (Short Term Scientific Missions), Training Schools, Workshops, Conferences and Dissemination activities. More information can be found at [http://www.cost.eu/COST\\_Actions/networking](http://www.cost.eu/COST_Actions/networking)

To join the Action, please refer to [www.sarcos.eng.cam.ac.uk](http://www.sarcos.eng.cam.ac.uk).

## GENERAL LEADERSHIP

Chair: Mercedes Sanchez Moreno, CSIC, Spain  
| [mercesanc@ietcc.csic.es](mailto:mercesanc@ietcc.csic.es)  
Vice-Chair: Nele De Belie, Ghent University, Belgium  
| [Nele.DeBelie@ugent.be](mailto:Nele.DeBelie@ugent.be)  
Grant Holder: Pedro Serna, UPV, Spain  
| [pserna@cst.upv.es](mailto:pserna@cst.upv.es)  
Grant Holder Manager: Pepa Bayarri, UPV, Spain  
| [sarcos.pepa@gmail.com](mailto:sarcos.pepa@gmail.com)

## WG1

Self-healing concrete and external healing repair materials  
Nele De Belie, Ghent University, Belgium

This Working Group will compare and analyse the current state of the different approaches for the preventive repair of concrete structures, producing a report of the current state of art for different technologies. Moreover aim is to provide guidelines and recommendations for the different methods, including the identification of the optimal applying conditions of the evaluated approaches, even considering the implementation of hybrid solutions.

## WG2

Characterization and monitoring of crack healing  
Liberato Ferrara, Politecnico di Milano, Italy

Working Group 2 will analyse and compare different characterization techniques to quantify the self-healing capability for new structures and the healing efficiency of external repair methods for aged concrete structures. This will further provide guidelines for evaluating the healing effectiveness with reference to the recovery of different properties of concrete materials or structural elements, due to self-healing activity of concrete in new structures or to the repair ability of external methods, including the analysis of the Round Robin Test results.

## WG3

Modelling of crack healing and service life prediction  
Anthony Jefferson, Cardiff University, United Kingdom

The primary objectives of this Working Group are to develop computational models for simulating the mechanical behaviour of self-healing concrete, to investigate methods for evaluating the durability of new and existing concrete structures, and to determine the increase in service life due to these preventive actions. WG3 comprises two main tasks, (i) to develop, calibrate and validate models for self-healing and repair techniques, (ii) to establish the increase in service life afforded by these techniques and thereby provide guidance on their effective use.

