

## Università degli Studi di Pavia Computational Mechanics & Advanced Materials Group - DICAr



## Advanced cement based composites: an asset for civil engineering to face the XXI century societal and economical challenges. The approach of the H2020 Project "ReSHEALience"

More than one century after its massive introduction in the building industry, concrete is still the most popular building material. Nevertheless, several critical infrastructures (especially those in the marine environment) show severe signs of distress. This fostered, the need of rethinking the design process of concrete structures, in view of reducing maintenance costs and extending their service life. In the framework of H2020, the European Commission has funded the project ReSHEALience, led by Politecnico di Milano and involving 14 partners from 8 countries, whose main goals are the development (a) of an Ultra High Durability Concrete (UHDC) and (b) a Durability Assessment-based Design (DAD) methodology to improve structure durability and predict long-term performance under Extremely Aggressive Exposures (EAE). The development of an innovative material calls for an extension of the available consolidated experimental methods to validate its durability in service conditions, and also for building adequate theoretical models to evaluate ageing and degradation of UHDC structures and therefore to accurately predict the lifespan. New design concepts will be proposed and validated through long-term monitoring in six fullscale proofs-of concept, selected as representative of cutting edge economy sectors, such as green energy, blue growth and conservation of R/C heritage.

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ND DESIGN

SERVICE LIF

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