

Session: **Modeling Sustainable Active Protective Coatings**

The protection of metallic structures against corrosion requires coating systems that provide a barrier to aggressive service conditions, but also contain active elements which should protect the structure in the case of coating degradation or damage. The efficient design and development of future environmentally and sustainable corrosion protection systems requires new approaches to reduce development cycles and save resources and maintenance costs by providing long-term durable coating systems. It is especially relevant for the new environmentally-friendly active protective coatings as a result of their complexity. Moreover, the absence of reliable accelerated tests often leads to over-engineering of protective schemes and in-service maintenance actions compromising economic aspects. These issues can be solved more effectively by using both data-based and physics-based modelling approaches aiming at definition of optimal composition and structure of the coating systems as well as predicting their behavior in various service environments.

Creation and implementation of innovative modelling tools, which will be able to predict corrosion protection, provide support for asset management and novel material designs becomes essential. The issues are to produce reliable predictive models, to interconnect different material and mechanistic protection models and identify relevant and accurate data for development and validation of the models.

The objectives of this session, organized as a joint effort of EFC WP22 (Corrosion Control in Aerospace), WP8 (Physico-Chemical Methods for Corrosion Testing), WP14 (Coatings), and WP6 (Surface Science, Corrosion Mechanisms and Modeling), are to bring together scientists and engineers from academia and industry and to share the latest results, developments and innovations related to development of active corrosion protection technologies applied in aerospace and other branches. Contributions are welcome as oral or poster presentations.

This session will provide a platform for exchange of knowledge and ideas between academia, coating developers, and end users on the following topics:

- Artificial intelligence and physics-based approaches for predictive modelling of coatings performance in static and dynamic conditions including inhibitor efficiency, leaching mechanisms and kinetics, degradation in coating defects and prediction of in-service behaviour;
- Optimization techniques and metadata for industry-relevant corrosion-protective coatings;
- Simulation supported mechanistic insights on advanced corrosion protection of active coating systems;
- Measurement techniques to obtain required data as input or validation of models;
- Business decision support systems and open innovation platforms for new coating co-creation and development;
- Industry needs in view of understanding, further test and modelling tools implementation.

Please submit your abstract online via www.eurocorr.org before **January 14, 2022**. We are looking forward to your contribution and participation in EUROCORR 2022 “Corrosion in a Changing World – Energy, Mobility, Digitalization” on 28 August - 1 September 2022, in Berlin, Germany.

Expected Joint Session duration: 1 day

Format: two half-day slots on one day, which will include one Keynote lecture (double time slot) per half day. [VIPCOAT](#) OIP (*Virtual Open Innovation Platform for Active Protective Coatings Guided by Modelling and Optimization*, [vipcoat.eu](#), H2020 project, Grant Agreement No 952903) introduction and round table discussion at the end of the session

Expected audience: 50–70 attendees