



MARK YOUR CALENDARS

APRIL 11-15, 2027

COLUMBUS, OHIO



AMPP Annual Conference + Expo 2027

Research in Progress Topic Descriptions

*All topic titles & chair names are clickable

Advanced Characterization Techniques

Chair: Christopher Alexander

Vice Chairs: Kushal Singla & Rajeev Gupta

Understanding corrosion processes requires characterization tools capable of probing complex electrochemical, chemical, microstructural, and mechanical interactions across multiple length and time scales. Recent advances in experimental characterization, in situ and operando measurements, spectroscopy, electrochemical diagnostics, and data analytics have transformed the ability of researchers to investigate corrosion initiation, propagation, passivation, environmentally assisted degradation, and protective material performance under controlled exposure conditions.

This symposium seeks contributions that highlight emerging and advanced characterization approaches that provide fundamental insights into corrosion mechanisms and enable new pathways for corrosion prediction, mitigation, and materials development. Particular emphasis will be placed on methodologies that bridge electrochemical measurements with real-time observation of microstructural and chemical evolution, as well as approaches that integrate multimodal datasets and advanced analytical frameworks to establish quantitative structure-corrosion-property relationships.

Presenters are invited to submit research in progress contributions that demonstrate innovative characterization methodologies, novel analytical frameworks, and multidisciplinary approaches that advance the fundamental understanding and practical assessment of corrosion processes in materials and engineered systems.

All submissions and presentations must be strictly non-commercial in nature. Promotional content and sales-oriented presentations will not be accepted.



Advanced Coatings and Inhibitors

Chair: Victoria Gelling

Vice Chairs: Nikole Kucza & Ajay Krishnan

This symposium invites abstracts focused on advancements in corrosion inhibitors, coatings, and integrated inhibitor-coating solutions. Topics of particular interest include novel coating and inhibitor chemistries developed in response to evolving regulatory requirements, as well as emerging technologies that enhance performance and reliability. Areas of interest include, but are not limited to novel inhibitor chemistries, advanced polymers, resins, additives, and pigments, surface pre-treatments and post-treatments, reactive and smart solutions that deliver enhanced functionality, multifunctional coatings and inhibitors. Application of modern technologies and digital tools, including data-driven and accelerated development approaches, for the design, optimization, and performance evaluation of coatings and inhibitors are also accepted.

Presentations should provide insight into the future direction of industrial coatings and corrosion inhibitors across a range of industries and applications. Abstracts are expected to highlight recent research findings, technological developments, and ongoing investigations.

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Corrosion in Extreme Environments

Chair: Danyil Kovalov

Vice Chairs: Rajan Ambat & Priyanka Adapala

This symposium invites abstracts on corrosion and materials degradation in extreme environments, including high temperature, high pressure, aggressive chemicals, concentrated salts, impurity gases, and combined mechanical and environmental conditions. Topics may include corrosion-resistant materials, localized corrosion, cracking, protective-scale stability, and material performance under demanding service conditions. Experimental studies, modeling, materials characterization, and ongoing research are welcome.

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Environmentally Assisted Cracking and Hydrogen Embrittlement

Chair: David Enos

Vice Chairs: Ramgopal Thodla, Jing Liu, & Sheewa Feng

Environmentally assisted cracking (EAC) and hydrogen embrittlement (HE) are degradation mechanisms impacting engineering alloys across a variety of industrial applications and environments. The focus of this session is the EAC/HE of both conventional and newly developed alloys. Processes/mechanisms of interest include crack initiation and growth, corrosion fatigue, hydrogen embrittlement/hydrogen induced cracking, as well as methodologies for EAC/HE mitigation and/or repair. Further, presentations on the development of novel techniques to monitor crack initiation and growth, EAC test protocols, and life prediction models, are welcomed. Submissions should include the latest research findings and ongoing investigations. Presentations must be research focused and not the review/discussion of specific commercial products.

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Localized Corrosion and Materials Durability: A Research in Progress Symposium Honoring Gerald S. Frankel's 70th Birthday

Chair: Jen Locke

Vice Chairs: Brendy Rincon Troconis & Mariana Georges

This Research in Progress (RIP) symposium honors Professor Gerald S. Frankel's 70th birthday and his influential contributions to corrosion science and engineering. Throughout his distinguished career, Prof. Frankel has advanced the fundamental understanding of how corrosion initiates, propagates, and can be controlled. His influential contributions comprise passivity and localized corrosion, including pitting, pit-growth stability and repassivation, as well as corrosion-resistant alloy design, atmospheric and galvanic corrosion, inhibitors, protective coatings, and long-term performance of materials used in demanding infrastructure, energy, and nuclear-waste environments.

This symposium will bring together emerging and established investigators to present new research work inspired by these interconnected themes. We especially encourage contributions addressing mechanistic understanding of corrosion behavior, innovative experimental and computational methods, advanced alloys and protection systems, and the translation of corrosion science into more durable and sustainable technologies.

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Materials Degradation and Sustainability in Infrastructure

Chair: Homero Castaneda-Lopez

Vice Chairs: Irem Efe & Sahithi Ayyagari

This RIP Symposium explores the critical intersection of corrosion, materials degradation, and sustainability in infrastructure. As global infrastructure ages and environmental demands intensify, understanding the mechanisms of materials degradation and corrosion becomes essential for ensuring long-term performance, safety, and environmental responsibility. Topics of interest include applications in the energy, aerospace, automotive, transportation, marine, water, nuclear, oil and gas pipeline, and defense sectors. As efforts to reduce carbon emissions and achieve net-zero greenhouse gas targets continue, it is increasingly important to consider the environmental impact of materials throughout their entire life cycle, from the production of both traditional and innovative materials to their end use. In this context, understanding and managing corrosion, while maintaining structural integrity, are essential for enhancing durability and supporting the long-term performance of infrastructure systems.

This session invites researchers, engineers, and industry professionals to share research insights, case studies, and recent technological advancements that will drive the future of sustainable infrastructure. Contributions on advanced materials and coatings for improved durability, predictive modeling of degradation processes in conventional and emerging infrastructure materials, artificial intelligence driven by data analytics, and innovative monitoring and assessment techniques are encouraged. Submissions should include the latest research findings and ongoing investigations.

All submissions and presentations must be strictly non-commercial in nature. Promotional content and sales-oriented presentations will not be accepted.

