

Corrosion from fundamentals to extremes

7-9 April 2027 | Manchester, UK



**Faraday
Discussions**

Wednesday 7 April 2027

11:30	Registration with lunch served from 11:45
12:45	Welcome and introductions <i>Chair of Scientific Committee</i>
12:55	Outline of Discussion format <i>Royal Society of Chemistry Publishing Editors</i>
13:00	Introductory Lecture – Spiers Memorial Lecture (Session chair: TBC) Gareth Hinds <i>National Physical Laboratory, USA</i>
	Session 1: Multi-principal element alloys (Session chair: TBC)
14:00	TBC Mitra Taheri <i>John Hopkins University, USA</i>
14:05	Exposure of Nb-Ti-V-Zr system multi-principle element alloys to demanding high temperature water environment Ronald Clark <i>United Kingdom National Nuclear Laboratory, UK</i>
14:10	Additively manufactured Ti₂₄Zr₂₄Ta₁₃Nb and Zr₂₄Ti₂₀Ta₁₁Nb biomedical alloys: structure-corrosion relations of relevance for the human body Yolanda Hedberg <i>Western University, Canada</i>
14:15	Discussion
15:30	Refreshments
	Session 1 continued: Multi-principal element alloys (Session chair: TBC)
16:00	TBC Rajeev Gupta <i>NC State University, USA</i>
16:05	Tuning through tiers: from binary to high-entropy electrocatalysts Deepa Khushalani <i>Tata Institute of Fundamental Research, India</i>
16:10	How microbes disrupt passive film via extracellular electron transfer Dake Xu <i>Northeastern University, China</i>
16:15	Discussion
17:30	Lightning presentations – (by invitation of the Scientific Committee)
17:45	Poster session and drinks reception
19:15	Close

Thursday 8 April 2027

	Session 2: Corrosion of light alloys (Session chair: TBC)
09:00	TBC Christine Blanc <i>Toulouse University, France</i>
09:05	Stepwise evolution of intermetallic-driven surface damage during chemical pretreatment of AA7075-T6 Maryam Eslami <i>University of Illinois, USA</i>
09:10	From static immersion to synergistic corrosion fatigue: damage tolerance of cold-sprayed Al-Al₂O₃ MMC coatings for steel protection Madan Pal <i>Hale Hamilton Valves Ltd, UK</i>
09:15	Discussion
10:30	Refreshments
	Session 2 continued: Corrosion of light alloys (Session chair: TBC)
11:00	TBC Mikhail Zheludkevich <i>Helmholtz-Zentrum Hereon, Germany</i>
11:05	What can crack arrest markings tell us about the environmentally assisted cracking of aluminium alloys? Timothy Burnett <i>The University of Manchester, UK</i>
11:10	Corrosion identification through transient-based drift removal from electrochemical noise Axel Homborg <i>NL Ministry of Defence & Delft University of Technology, The Netherlands</i>
11:15	Discussion
12:30	Lunch
	Session 3: Corrosion in extreme environments (Session chair: TBC)
13:30	TBC Kim Verbeken <i>Ghent University, Belgium</i>
13:35	Effect of temperature on hydrogen entry into iron and the role of the native oxide Philippe Marcus <i>Chimie ParisTech-CNRS, PSL University, France</i>
13:40	The final destination of Cr: Cr(VI) and the loss of Cr-based protection in structural alloys at the extremes Karthikeyan Hariharan <i>Indian Institute of Technology Bombay, India</i>
13:45	Towards a standardised corrosion test methodology in dense phase CO₂ Shravan Kairy <i>National Physical Laboratory, UK</i>
13:50	Discussion
15:30	Refreshments
	Session 3 continued: Corrosion in extreme environments (Session chair: TBC)
16:00	Composition threshold definitions to control corrosion in impure CO₂ transport Hans Sonke <i>Shell Global Solutions International B.V, The Netherlands</i>

16:05	Operando quantification of Ni dissolution and interfacial reactions in acidic environments using coupled AESEC-QCM and respirometry Junsoo Han <i>Sorbonne Université France</i>
16:10	Water re-structuring as a prerequisite for corrosion initiation at buried polyurethane–iron interfaces Suzanne Morsch <i>The University of Manchester, UK</i>
16:15	Mechanistic coupling between localized corrosion evolution and strain localization in cold metal transfer welded thin-walled steel Niladri Roy <i>IIT Hyderabad, India</i>
16:20	Discussion
18:00	Close of session
18:30	Pre dinner drinks
19:00	Conference dinner

Friday 9 April 2027

	Session 4: Artificial intelligence in corrosion (Session chair: TBC)
09:00	TBC Mira Todorova <i>Max Planck Institute for Sustainable Materials GmbH, Germany</i>
09:05	Can we reliably predict localized corrosion? Emilio Martinez-Paneda <i>University of Amsterdam, The Netherlands</i>
09:10	Towards prediction and understanding of aluminium alloy corrosion with artificial intelligence Oscar Mauricio Prada Ramirez <i>UMONS, Belgium</i>
09:15	Discussion
10:30	Refreshments
	Session 4 continued: Artificial intelligence in corrosion (Session chair: TBC)
11:00	TBC Leonardo Bertolucci Coelho <i>Université Libre de Bruxelles, Belgium</i>
11:05	In silico discovery: from pharmaceuticals to corrosion inhibitors Andrew Leach <i>The University of Manchester, UK</i>
11:10	Deep learning enabled quantification of pit ejection dynamics Viacheslav Shkirskiy <i>Université Paris Cité, France</i>
11:15	Discussion
12:30	Concluding remarks lecture (Session chair: TBC) Mary Ryan <i>Imperial College London, UK</i>
13:00	Acknowledgements and presentation of poster prizes
13:10	Close of meeting and lunch