

PROGRAMME



EFC event no. 522

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MIUM
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with the endorsement of:

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EUROPEAN FEDERATION OF CORROSION



ASSOCIAZIONE
ITALIANA DI
METALLURGIA

Sunday, 15th June

17.00 - 19.00	Registration
20.00	Welcome reception Basaglia Hall

Monday, 16th June

8.50 - 9.10	Welcome
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9.10 - 9.50	Invited lecture V. Vivier Operando combination of techniques for studying corrosion processes
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Operando electrochemical techniques (chair: V. Vivier, F. Bolzoni)	
9.50 - 10.10	N. Madelat, M. Dabiri Havigh, B. Wouters, T. Hauffman, M. Meeusen, M. Haile Mamme, H. Terryn, A. Hubin Designing sustainable materials through a combined modelling and operando experimental approach
10.10 - 10.30	M. Dabiri Havigh , B. Wouters, N. Halleman, T. Hauffman, J. Lataire, H. Terryn, A. Hubin Application of operando ORP-EIS for studying anion incorporation during anodizing
10.30 - 10.50	C. Lamoum (eligible for best presentation award) , O. Gharbi, L. Belliard, V. Vivier, K. Ngo Study of corrosion of aluminum by coupling acoustic and electrochemical measurements

10.50 - 11.20	Coffee break
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Coupling between electrochemical and non-electrochemical methods (chair: H. Hubin, K. Ogle)	
11.20 - 11.40	B. Sultan , K. Ogle, J. Han Development of a novel coupled analytical approach combining Atomic Emission Spectro electrochemistry (AESEC) and Electrochemical Quartz Crystal Microbalance (EQCM) techniques
11.40 - 12.00	A. Sotniczuk , C. Xie, W. Chromiński, D. Kalita, F. Sun, K. Ogle Corrosion behavior of new orthopedic alloys designed based on Ti-Mo system: real-time AESEC dissolution analysis combined with ex-situ TEM characterization
12.00 - 12.20	F. Di Franco , D. Pupillo, A. Zaffora, G. Tranchida, M.L. Lazzara, M. Santamaria Synergistic use of electrochemical and photoelectrochemical methods to study the corrosion behaviour of TiAlV alloys
12.20 - 12.40	J.P. Lopes do Nascimento, M. Oliveira Alves Ferreira, R.V. Gelamo, R.M. da Silva Sampaio, N. Bueno Leite Slade, J.A. Moreto, J.C. Salvador Fernandes EIS, photoelectrochemical and ellipsometric study of niobium pentoxide deposited on Ti-6Al-4V alloy by DC reactive sputtering
12.40 - 13.00	K. Fushimi , N. Takano, M. Iwai, S. Kitano, H. Habazaki, R. Nakagawa, D. Yamamoto Online ICP-OES measurements for investigating corrosion of Al-10Si alloys in chloride environment

13.00 - 14.30	Lunch
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Passivity and localized corrosion (chair: P. Marcus, F. Di Franco)	
14.30 - 14.50	P. Marcus , S. Zanna, A. Seyeux, L. Wang, X. Wang, D. Mercier Passivation and localized corrosion of high entropy alloys
14.50 - 15.10	C. Xie, F. Sun, J. Han, K. Ogle The role of alloying elements in the spontaneous passivation of CoCrFeNi multi-principal element alloy (MPEA) family
15.30 - 15.50	Y. Hou , C. Xie, J. Han, F. Sun, K. Ogle Investigating the role of Cu and Mo in the corrosion resistance and passivation behavior of equiatomic CoCrFeNi multiprincipal element alloys (MPEA) using in situ detection methods
15.50 - 16.10	N. Zakerin, K. Morshed-Behbahani, D.P. Bishop, A. Nasiri Unveiling passivity response of arc directed energy deposited 308 austenitic stainless steel in 0.1 M sulfuric acid solution
16.10 - 16.30	H. Rodrigues, I. Aubert, O. Devos , M. Touzet-Cortina Corrosion study of wire arc additively manufactured SS 316L – Influence of the mechanical deformation and comparison with conventional 316L
16.30 - 16.50	M. Leonardi (eligible for best presentation award) , B. Puga, B. Gwinner, N. Pebere, V. Vivier Corrosion behavior of pure Ta in a concentrated and hot nitric acid environment

16.50 - 17.30	Coffee break Poster session 1
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Corrosion mechanisms (chair: M. Cabrini, C. Pérez)	
17.30 - 17.50	M. Cabrini , L. Gritti, M. Pelucchi, T. Persico, S. Lorenzi, D. Coffetti, E. Soileux, T. Pastore Hydrogen solubility and distribution inside spheroidal cast iron
17.50 - 18.10	N. Macháčková (eligible for best presentation award) , K. Kuchárková, T. Prošek Efficiency of corrosion-induced hydrogen entry into steel
18.10 - 18.30	L. Cupertino-Malheiros , Y. Bao New insights into the hydrogen evolution reaction and absorption kinetics using multiple electrochemical techniques
18.30 - 18.50	A. Collazo, R. Figueroa, X.R. Nóvoa, C. Pérez The galvanic couple carbon steel-shape memory steel in media of different aggressiveness
18.50 - 19.10	M. Motta (eligible for best presentation award) , A. Sin, L. Fedrizzi, F. Andreatta Chitosan as a corrosion inhibitor for gray cast iron and its role in mitigating the stiction phenomenon in automotive braking systems

20.00 - 22.30	Dinner
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Poster session 1
A. Bastos , M. Santos, J. Tedim Galvanic interactions of copper with oxide films and differential temperature
J. Lamas , J. Tacq, B. Teerlinck In-situ monitoring of pitting corrosion in carbon steel for offshore structures using electrochemical techniques
H. Laieghi (eligible for best poster award) , M.M. Butt, V. Kvvssn, A. Farooq, P. Ansari, M. Salamci, E. Salamci Synergistic drivers of intergranular corrosion in SLM AlSi10Mg alloys
G. Lin , A. Gabryelczyk, R. Yang, Z. Yao, R. Yu, Y. Liang, A. Baron-Wiechec Tracking hydrogen in metals: permeation and thermal desorption study using a deuterium tracer
L. Gritti (eligible for best poster award) , D. Coffetti, M. Cabrini, T. Pastore Simplified methodology for estimating diffusion coefficient and hydrogen uptake via data driven optimization approach
K. Nomura (eligible for best poster award) , M. Iwai, S. Kitano, H. Habazaki, K. Fushimi Acceleration of atmospheric corrosion rate of iron at low temperature
J. Yuan , P. Merlin, B. Gwinner, J.M. Borgard, R. Chanson, A. Fallet, F. Rouillard, C. Xie, N. Schneider, K. Ogle, J. Han Real-time monitoring of oxygen evolution reaction and elemental dissolution kinetics via AESEC-respirometry: Corrosion mechanisms for bipolar plates in proton exchange membrane electrolysis
T. Félix de Almeida, O.M. Prada Ramirez, M. Araujo Tunes, H.G. de Melo Impact of microstructure on the corrosion resistance of a novel aluminium crossover alloy
D. Asperti (eligible for best poster award) , M. Cabrini, S. Lorenzi, D. Fiorona, M. Lombardi, T. Pastore Effect of heat treatment on corrosion resistance of AlSi9Cu3 alloy produced by laser powder bed fusion
A. Simons , K. Verbeken, T. Depover Innovative methodology for the use of electrochemistry in corrosion research in heat pumps using a H ₂ O-NH ₃ coolant
I. Bahtit, B. Puga , N. Gruet, X.R. Nóvoa, V. Vivier Study of nitric acid reduction mechanisms on a silicon-enriched austenitic stainless steel under heat transfer conditions: a technological challenge
M. Mohammedture (eligible for best poster award) , Y. Morozov, M. Gutierrez, N. Aboulkhair, F. Montemor The effect of selective dissolution on electrochemical impedance spectra of 3D-printed aluminum alloys subjected to chloride-induced corrosion
T. Cordoba , V. Matres, J. F. Almagro, A. Nuñez, L. A. Angurel, M. Castro, G. F. de la Fuente, L. Porta-Velilla, E. Blanco, J. M. Gonzalez Corrosion resistance of Ferritic Stainless Steels pickled by laser
M. Zanocco , M. Motta, S. Virgilio, A. Silvonen, L. Fedrizzi, F. Andreatta Electrochemical behaviour of 42CrMo4 QT steel in commercial and pure methanol
P. Forcellese, W. A. Khan (eligible for best poster award) , T. Bellezze Electrochemical methods and microstructural characterization to investigate the corrosion resistance properties of 316L samples printed through Binder Jetting and sintered using different furnaces
L.C. Rezende Coelho, P.H. Suegama, H.G. de Melo Comparing the corrosion resistance in the as-printed condition of 17-4 PH stainless steel obtained from two additive manufacturing technologies
C. Hejjaj , M.C. Folena, H. Farhat, B. Aissa Investigating the impact of partitioning behavior of a C16 surfactant on the corrosion protection of steel in a CO ₂ -saturated environment

Tuesday, 17th June

8.50 - 9.30	Invited lecture M.E. Orazem On interpretation of impedance spectra
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Electrochemical impedance spectroscopy (chair: M.E. Orazem, B. Tribollet)	
9.30 - 9.50	S. Martinez AI-aided EIS method for streamlined in situ corrosion rating of bioimplant metallic materials
9.50 - 10.10	N. Ribi�re, B. Tribollet , N. Engler, D. Brimbal, M. Skocic, �. Andrieu, C. Blanc, L. Laffont EIS analysis of oxide layers developed on nickel-based alloy steam generator tubes during exposure to primary water
10.10 - 10.30	M. Itagaki , T. Kasiwa, H. Watanabe, I. Shitanda, S. Ito, T. Hosogi Impedance analysis on localized corrosion of copper with transmission line model
10.30 - 10.50	A. Gabryelczyk , G. Lin, R. Yang, Z. Yao, R. Yu, Y. Liang, A. Baron-Wiechec Electrochemical impedance spectroscopy for characterization of TiO ₂ layers: semiconducting and corrosion properties

10.50 - 11.20	Coffee break
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Electrochemical impedance spectroscopy (F. Deflorian, S. Lamaka)	
11.20 - 11.40	Z. Jiryaesharahi , N. Madelat, B. Wouters, H. Terryn, T. Hauffman, A. Hubin Exploring the diffusion kinetics of water and ions through organic coatings using ORP-EIS
11.40 - 12.00	D. Jero , N. Causs�, N. P�b�re Water uptake and molecular mobility in polyamide coatings: A comparison of 3- and 4-electrode EIS experiments
12.00 - 12.20	M. Sakairi , T. Yamamoto, T. Shen Investigation into corrosion behavior of metals in artificial sea water at low temperature with electrochemical methods
12.20 - 12.40	Y. Morozov , N. AlShehhi, M. Mohammedture, M.F. Montemor Electrochemical Frequency Modulation (EFM) technique to quantify the corrosion of aluminium and magnesium alloys
12.40 – 13.00	L. Mezzomo , M.A. Abello, V. Mataloni, A. Bonfanti, F. Bertasi Correlating electrochemical noise measurements and neutral salt spray tests on primary and recycled anodized aluminum-silicon alloys

13.00 - 14.30	Lunch
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Mechanisms and electrochemical corrosion sensors (chair: H. Terryn, M.L. Zheludkevich)	
14.30 - 14.50	V. Vangrunderbeek, K. Zhang, L. Bertolucci Coelho, Y. Gonzalez-Garcia, A. Hubin, M. Haile Mamme, H. Terryn The critical role of electrolyte evolution in atmospheric corrosion sensor performance
14.50 - 15.10	P. Linhardt Electrochemistry in remote places – MICRA-buoy as an instrumented probe for assessing the corrosiveness in natural waters
15.30 - 15.50	W. Xu, D. Snihrova, M. Deng, L. Wang, B. Vaghefinazari, C. Wang, D. Höche, S.V. Lamaka, M.L. Zheludkevich Optimising discharge of Mg anode through combination of modelling with electrochemical techniques
15.50 - 16.10	S. Lamaka , C. Wang, M.L. Zheludkevich Contribution of oxygen reduction reaction to the cathodic processes during magnesium degradation in selected complex environments
16.10 - 16.30	N. Madelat , B. Wouters, K. Marcoen, T. Hauffman, A. Hubin Real-time monitoring of the influence of current density and temperature on performance of Pb-Ag anodes in zinc-electrowinning systems
16.30 - 16.50	J. Han , B. Tribollet, K. Ogle Revisiting Ni dissolution in sulfuric acid using element-resolved electrochemical impedance spectroscopy
16.50 - 17.30	Coffee break Poster session 2

Modeling and machine learning (chair: E. Martínez-Pañeda, M. Meeusen)	
17.30 - 17.50	E. Martínez-Pañeda Virtual Electro-Chemo-Mechanical experiments to unravel and predict localized corrosion
17.50 - 18.10	M. Meeusen , N. Abdelrahman, A. Hubin, H. Terryn The coupling of experiments and finite element models for the prediction of corrosion phenomena
18.10 - 18.30	V. Bongiorno , M. Curioni, N. Hijnen, X. Zhou A machine learning approach for the interpretation of electrochemical data from corroding systems
18.30 - 18.50	N. Acevedo , F. Sun, K. Ogle, P. Laghoutaris, J. Han Local and element-resolved electrochemical setup via atomic emission spectroelectrochemistry coupled with scanning flow cell: Toward high-quality element-resolved datasets for machine-learning based alloy design
18.50 - 19.10	V. Shkirskiy , A. Makogon, F. Kanoufi Leveraging unsupervised machine learning for advanced electrochemical analysis
20.00 - 22.30	Dinner

Poster session 2
M. Macht (eligible for best poster award) , M. Fedel, S. Rossi, M. Vazquez, B. Valcarce Electrochemical behavior of steel in alternative cement mixtures: insights into corrosion and passivation dynamics
A. Diéguez, B. Díaz , X.R. Nóvoa, C. Pérez Four-electrode impedance measurement for the corrosion monitoring of steel in concrete
A. Makogon (eligible for best poster award) , V. Shkirskiy, F. Kanoufi Automated hydrogen permeation analysis using machine learning-enhanced optical microscopy
M. Gamba , M. Ormellese, A. Cristoforetti, M. Fedel, A. Brenna Producing plasma electrolytic oxidation (PEO) corrosion resistant coatings on aluminium 2024 texturized with a riblet-like surface for aeronautical applications
N. Kovač , S. Kralj, B. Kapun, I. Milošev, P. Rodič Corrosion protection of AZ31 magnesium alloy using sol-gel coating for biomedical applications
A. Olesiński , M. Sowa, W. Simka Evaluation of corrosion resistance and mechanical properties of particle-doped coatings produced in plasma electrolytic oxidation under soft-sparking regime
O. Bannour (eligible for best poster award) , M. Anouar, A. El Guerra, M. Bouzziri, E. Oukani Electrosynthesis of Zn-M (M=Cu, Sn, Mg, Al) protective coatings for enhanced steel corrosion resistance
D. Chávez, B. Díaz , C. Mariño, X.R. Nóvoa, C. Pérez Development of 3D conductive cement-based anodes for impressed current cathodic protection of reinforced concrete
T. Félix de Almeida, O.M. Prada Ramirez, O. Devos, H.G. de Melo Corrosion performance of AA7075-T6 alloy anodizing in a sulphuric-tartaric acid bath and polymer sealing
N. AlShehhi, Y. Morozov , N. Tomic, M.F. Montemor The effect of cerium organophosphate corrosion inhibitor on water absorption in epoxy-based coatings assessed by electrochemical impedance
E. De Ketelaere , D. Moed, M. Vanoppen, K. Verbeken, T. Depover Comprehensive electrochemical characterization of silicate-based corrosion inhibition
S. Al Awadh (eligible for best poster award) , R. Lindsay Detection of localized corrosion in steel samples immersed in soil using electrochemical noise and shot noise analysis
E. Tubaro (eligible for best poster award) , F. Andreatta, M. Pesle, A. Bomtempo, L. Fedrizzi Electrochemical evaluation of formulation parameters in epoxy primers for fouling-release systems resistant to cathodic disbonding on bronze alloys
D. Veys-Renaux , E. Rocca Sealing performances on anodic layers: comparative evaluation by electrochemical impedance spectroscopy and standard tests
D. Parasińska , P. Ślepski, L. Gawel Amplitude-modulated excitation in nonlinear electrochemical impedance spectroscopy: comparative insights from galvanostatic and potentiostatic measurements for corrosion monitoring
M. Maeda Evaluation of corrosion behaviour of Zn-Al alloys in simulated concrete environments using electrochemical impedance spectroscopy

Wednesday, 18th June

8.50 - 9.30	Invited lecture A.W. Hassel Scanning droplet cell microscopy as a powerful tool in corrosion research
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Local electrochemical techniques (chair: A.W. Hassel, A.C. Bastos)	
9.30 - 9.50	E. Kurchavova , F. Balbaud-Célrier, O. Gharbi, K. Ngo, M. Turmine, V. Vivier Electrochemical screening method in ionic liquid microdroplet coupled with goniometer measurement
9.50 - 10.10	G. Williams New insights into the application of scanning vibrating electrode technology to investigate the localised corrosion of magnesium
10.10 - 10.30	A.C. Bastos , M.C. Quevedo, M.G.S. Ferreira The influence of vibration and probe movement on SVET measurements
10.30 - 10.50	L. Braga Souto, L.F.P. Dick In situ current capping during the crevice corrosion of stainless steel

10.50 - 11.20	Coffee break
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Corrosion and corrosion protection (chair: M.-G. Olivier, H.G. de Melo)	
11.20 - 11.40	R.E. Klumpp, S. Akbarzadeh, T. Kairet, V. Ölmez, M. Gonon, A. Megret, F. Delaunois, M.-G. Olivier Correlations between composition, microstructure and corrosion behavior of AM AlSi7Mg0.6 and AM 7075-Ti and alloys from selective laser melting (SLM): Electrochemical approach to local and global phenomena
11.40 - 12.00	A. Cristoforetti , M. Gamba, A. Brenna, M. Ormellese, M. Fedel Exploring the corrosion resistance and microstructural evolution of textured aluminum alloys using TMM
12.00 - 12.20	M. Magnan (eligible for best presentation award) , F. Wiame, J. Swiatowska Corrosion evolution and protection provided by the industrial trivalent chromium process of aluminium-copper and aluminium-copper-lithium alloys
12.20 - 12.40	O.M. Prada Ramirez, L. Souza Domingues, S. Moreira Costa, H.G. de Melo Study of the corrosion resistance of 2024-T3 aluminum alloy anodized in TSA with the addition of graphene oxide
12.40 - 13.00	T. Liao (eligible for best presentation award) , S. Al Abri, X. Zhou, B. Mingo Surface modification of anodised aluminium with fibrous silica for enhanced corrosion resistance

13.00 - 14.30	Lunch
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Visit to the Murano Glass Museum	
15.00	Departure by Gran Turismo” motorboat
16.00 - 17.30	Visit of the glass museum
18.00	Departure for the San Servolo island
19.00	Arrival in San Servolo
20.00	Gala dinner

Thursday, 19th June

Corrosion and corrosion protection (chair: I. De Graeve, F.J. Rodriguez-Gómez)	
8.30 – 8.50	R.I. Revilla, C. Rybin, I. De Graeve Electrochemical conversion of additively manufactured aluminium alloys
8.50 - 9.10	S. Akbarzadeh (eligible for best presentation award) , R.E. Klumpp, T. Kairet, V. Ölmez, F. Delaunois, M.-G. Olivier PEO coatings for additively manufactured AlSi7Mg0.6 alloy: Unveiling the influence of surface morphology
9.10 - 9.30	K.A. Yasakau , M. Serdechnova, C. Blawert, M.L. Zheludkevich Corrosion degradation mechanisms of PEO-coated aluminum alloys studied by electrochemical impedance spectroscopy
9.30 - 9.50	O. Gharbi , C. Méthivier, E. Kurchavova, M. Turmine, V. Vivier Exploring cation - anion synergy of environmentally friendly ionic liquids for the corrosion inhibition of Al alloys
9.50 - 10.10	R. Kaddah (eligible for best presentation award) , D. Veys-Renaux, F. Mirambet, A. Mirambet-Paris, E. Rocca Electrochemical characterization of corroded 2024-T3 alloy treated with environmentally friendly carboxylic acids for aerospace applications
10.10 – 10.30	D. Huerta-Nolasco, P. Roncagliolo-Barrera, F.J. Rodriguez-Gómez Conversion coating with neodymium additions for AS21 alloy for the automotive industry through a deep eutectic solvent (DES)

10.30 - 11.00	Coffee break
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Corrosion and corrosion protection (chair: I.V. Aoki, S. Rossi)	
11.00 – 11.20	A. Kraš (eligible for best presentation award) , D. Kramar, I. Milošev Response surface methodology for zirconium conversion coating optimisation on cold-rolled steel, Zn, and AA5754 substrates
11.20 – 11.40	M.A. Iqbal, H. Asghar, E. Matykina, R. Arrabal, M. Mohedano, J.M. Vega Mg-Al-LDH pigments dried by lyophilization and loaded with different corrosion inhibitors: tailored corrosion evaluation by electrochemical techniques
11.40 – 12.00	J. Santana de Sá Reis, B. Pereira da Silva, T.A. Gonçalves Martins, I.V. Aoki Lithium and Cerium (III) salts loaded in epoxy coating on galvanized steel to improve corrosion resistance
12.00 – 12.20	E. Rahimi , T. Nijdam, A. Jahagirdar, E. Broitman, A. Mol Enhanced microstructural, nanomechanical, and corrosion properties of optimized CrN/Cr coatings on carbon steel
12.20 – 12.40	A. Nasiri (eligible for best presentation award) Ion implantation: A breakthrough for superior corrosion resistance and sustainable surface solutions
12.40 – 13.00	D.R. Ceratti Are halide perovskites corrosive materials? Challenges and insights into the corrosion behaviour of halide perovskite solar panels

13.00 - 14.30	Closing and light lunch
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