

EFC NEWSLETTER

FÉDÉRATION EUROPÉENNE DE LA CORROSION
EUROPEAN FEDERATION OF CORROSION
EUROPÄISCHE FÖDERATION KORROSION



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EUROCORR 2016

Montpellier, France, 11-15 September 2016 (EFC Event No 391)

Invitation to EUROCORR 2016

EUROCORR, the **annual event of the European Federation of Corrosion**, is the premier Corrosion Congress in Europe, attracting an ever increasing international audience.

In 2016, EUROCORR will take place in **Montpellier, France**, from **11 to 15 September, 2016**. Montpellier is a beautiful and charming Mediterranean city, offering a blend of history, culture and modernity.





Le Corum

Le Corum, Montpellier Conference Centre, is ideally located in the heart of the city, with a large choice of hotels and restaurants within walking distance.



Saint Clément Aqueduct

After the success of EUROCORR 2004 and 2009 in Nice, CEFRAFOR and the Fédération Française pour les sciences de la Chimie (FFC), Member Societies of the EFC, in cooperation with Chimie ParisTech, have been designated by the EFC to co-organise this major event. EUROCORR 2016 will cover all aspects of corrosion science, technology, and engineering, with emphasis on a main theme: **Advances in linking science to engineering.**

This will be achieved by bringing together corrosion experts from universities, research centres, and industries. EUROCORR 2016 will be a forum for presentation and discussion of advances in understanding corrosion phenomena and progress in corrosion prevention.

The programme will include plenary lectures, keynote lectures, oral and poster presentations in all the areas covered by the EFC working parties, with additional topical workshops. A preview of the topics is given in this newsletter.

A large exhibition is planned, which will feature the latest developments in corrosion resistant materials, corrosion monitoring, coatings, inhibitors, cathodic protection.

Social events, including receptions and a conference dinner, will contribute to the warm and friendly atmosphere that you will find in Montpellier.

We are looking forward to welcoming you in Montpellier for EUROCORR 2016. Please save the date!

Philippe Marcus
Chairman of EUROCORR 2016



Promenade du Peyrou

Topics:

Working Party sessions as follows:

- Corrosion and Scale Inhibition (WP1),
- Corrosion by Hot Gases and Combustion Products (WP 3),
- Nuclear Corrosion (WP 4),
- Environment Sensitive Fracture (WP5),
- Corrosion Mechanisms, Methods and Modelling (WP 6 & 8),
- Corrosion Education (WP 7),
- Marine Corrosion (WP 9),
- Microbial Corrosion (WP 10),
- Corrosion of Steel in Concrete (WP 11),
- Corrosion in Oil & Gas Production (WP 13),
- Coatings (WP 14): Metallic Coatings, Inorganic Coatings, Organic Coatings, Pretreatments, Self-healing Coatings,
- Corrosion in the Refinery Industry (WP 15),
- Cathodic Protection (WP 16),
- Automotive Corrosion (WP 17),
- Tribocorrosion (WP 18),
- Corrosion of Polymer Materials (WP 19),
- Corrosion & Corrosion Protection of Drinking Water Systems (WP 20),
- Corrosion of Archaeological and Historical Artefacts (WP 21),
- Corrosion Control in Aerospace (WP 22).

Together with five workshops on:

- Advanced Analytical Methods for Corrosion Research,
- Corrosion and Protection of Magnesium Alloys,
- Quality Control, Standardization and Certification for Protective Paint Systems,
- Corrosion issues for Renewable Energies,
- Improving Corrosion Control of Ships.

Important Dates:

Submission of abstracts:

January 17, 2016

Notification of acceptance to authors:

April 15, 2016

Submission of full manuscripts:

June 15, 2016

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LETTER FROM THE EFC PRESIDENT

To all the members of the European Federation of Corrosion

Dear members,

It is a great honour to write to you as President of the EFC, a thriving and professional organisation, which is making a major international impact on the corrosion and corrosion prevention related activities. The EFC represents over 30 national societies from 25 European countries including a number of well-known overseas societies. The EFC is the largest corrosion organisation in Europe and plays a key role in addressing the global problem of corrosion and its prevention. Its strategy aims at growing and expanding its technical-scientific leadership in Europe and beyond its borders. To achieve these aims EFC needs to establish stronger partnerships with its member societies and must attract new societies, in Europe and outside. Presently, the increasing number and geographical diversity of new organisations joining EFC is a guarantee that EFC is a very reputed and prestigious organisation and a reference around the world.

The EFC annual event, the EUROCORR congress, is a flagship that attracts nearly 1000 delegates from more than 50 countries. EFC is extremely proud to see the increasing attractiveness of this event to young people and to industry professionals. EUROCORR is undoubtedly a milestone in the yearly agenda of corrosion and corrosion-related events and its date is already saved in the agenda of many professionals in the field all over the world.

In 2015, the EFC commemorates its 60th anniversary. This important date is celebrated by launching a new EFC logo in which metals, corrosion, corrosion protection and sustainable environment are strongly underlined. Another important EFC initiative to celebrate this important date is the implementation of a fund to sponsor and to stimulate young researcher scientific activities in an international environment. Young researchers, at PhD level, may use EUROCORR as a networking event to find complementary partners to establish joint research activities and to present their collaborative research results.

As President of the EFC, I want to express my

gratitude to all the EFC member societies for contributing to the EFC activities and for strengthening EFC as a reference in the

corrosion field. EFC can also support you to a large extent. Your societies have access to the many different services and benefits that their membership entitles them to. For example, the EFC members have a reduced fee to attend the yearly EUROCORR Congress as well as discounted rates on all EFC publications, including the EFC "Greenbook" Series. As a new initiative, the member societies may apply for a sponsorship for implementing joint synergistic activities with EFC, to raise the visibility of both institutions.

So the EFC vision and strategy are clear: the EFC must increase its value and brand, and must become a reference internationally recognised in the corrosion field. Therefore, I commit to provide the leadership the EFC requires to implement its strategy, and to achieve its objectives and ambitions.

There are several individuals that I must recognise who I know I can count on for their valuable support in achieving these aims. These include past EFC Presidents for their advice, the Science and Technology Advisory Committee (STAC) particularly the STAC chairman, for his commitment in strengthening the scientific activities and the current Vice-President, for his support and valuable knowledge on EFC matters. I also want to thank all the high level professional people in the EFC secretariats, in Paris, London and Frankfurt am Main, who support the EFC activities and handle the daily issues.

I am looking forward to great years ahead and I am honoured to have the opportunity to serve as your President.

Thank you very much. EFC welcomes you in Graz. And do enjoy the EUROCORR 2015.

Sincerely yours,

Fatima Montemor



EUROPEAN CORROSION MEDAL WINNER

Professor Philippe Marcus



Professor Philippe Marcus is Director of Research at CNRS (Centre National de la Recherche Scientifique) and Head of the Research Group of Physical Chemistry of Surfaces of Institut de Recherche de Chimie Paris, Ecole Nationale Supérieure de Chimie de Paris, Chimie ParisTech, France.

Philippe Marcus received his Ph.D. (1979) in Physical Sciences from University Pierre and Marie Curie, Paris, France. His field of research is surface chemistry, surface electrochemistry, and corrosion science, with emphasis on the understanding of the structure and properties of metal and alloy surfaces.

His research interests include the growth mechanisms and structure of oxide layers on metals and alloys in gaseous and aqueous environments, adsorption of inorganic, organic and biomolecules, the mechanisms of corrosion of metals and alloys at the nanoscale, passivity, passivity breakdown and localized corrosion, initial stages of high temperature oxidation, and the applications of advanced surface analytical methods such as X-ray Photoelectron Spectroscopy, Scanning Tunnelling Microscopy and Spectroscopy, and Time-of-Flight Secondary Ions Mass Spectrometry. Prof Marcus has published over 400 papers in scientific journals, books and conference proceedings in the areas of corrosion science, surface chemistry and electrochemistry, surface analysis and materials science, plus two books "Corrosion Mechanisms in Theory and Practice" and "Analytical Methods in Corrosion Science and Engineering". He has given over 100 invited lectures at International Conferences. He

serves or served on the editorial board of five major journals in Electrochemistry and Corrosion: *Electrochimica Acta*, *Corrosion Science*, *Materials and Corrosion*, *Corrosion Engineering, Science, and Technology*, and *Corrosion Reviews*. Prof Marcus has received a number of awards and honours, including the 2005 Uhlig Award from the Electrochemical Society, the 2008 Whitney Award from NACE International, the Cavallaro Medal of the European Federation of Corrosion in 2008, the U.R. Evans Award of the UK Institute of Corrosion in 2010, the Lee Hsun Award of the Institute of Metals Research of the Chinese Academy of Sciences in 2012.

Philippe Marcus has organised or co-organised several international conferences including EUROCORR (the European Corrosion Conference, Nice (F), 2004) and Passivity-9 (Paris (F), 2005). In 2006 he was the Chair of the Gordon Research Conference on Aqueous Corrosion (New London, NH, USA). He was the Chair of EUROCORR in 2009, and of EMNT in 2010. He will be the Chairman of EUROCORR in 2016.

Prof Marcus was President of the European Federation of Corrosion from 2008 to 2012. He is currently Chairman of the EFC Working Party on Surface Science and Mechanisms of Corrosion and Protection, Chairman of the International Steering Committee for the European Conferences on Applications of Surface and Interface Analysis, Chairman of the Scientific and Technical Committee of CEFACOR (Centre Français de l'Anticorrosion), and Vice-President of CEFACOR.

Prof Marcus will be awarded his **European Corrosion Medal** by the EFC President at **EUROCORR 2015's opening session in Graz**.

KURT SCHWABE PRIZE WINNER

Dr Marta Mohedano Sánchez

The Kurt Schwabe prize is presented every three years to a young scientist below 35 years of age in recognition of his or her scientific and technical contribution to the field of corrosion on the basis of publication. The award consists of a certificate and a sum of 500 Euros.

The 2015 prize has been awarded to **Dr Marta Mohedano Sánchez** for her extensive contribution in the field of corrosion and protection of light alloys. Her work is supported by 35 publications; she has participated in 4 nationally and internationally funded research programs and 5 industrially funded research and development projects. Dr Marta Mohedano obtained her degree in Chemical Engineering in July 2006 from University Alfonso X el Sabio of Madrid, Spain. In 2011, she received her Doctorate (Ph.D.) in Materials Science and Technology from University Complutense of Madrid (UCM), Spain.

From December 2013, Dr Mohedano has been a post-doctoral Humboldt Fellow in the Corrosion and Surface Technology group, Magnesium Innovation Centre, Helmholtz Zentrum Geesthacht, Germany. Prior to this (between January 2012 and May 2013)

she was a post-doctoral researcher in the group of Characterisation, Corrosion and Degradation of Materials of Technological Interest at UCM, Spain.

Previous awards and honours include the Humboldt Research Fellowship for Postdoctoral Researchers, the UCM Predoctoral Fellowship, the Predoctoral Fellowship for foreign stays (University of Cambridge, UK), Extraordinary Doctorate Award (UCM).

Dr Mohedano's field of study is aimed at improving the corrosion and wear properties for Mg-Al alloys by development of surface treatments using plasma electrolytic oxidation (PEO). In the case of PEO coatings for structural applications, this is done by optimisation of electrical parameters, post-treatments and incorporation of particles from the electrolyte. In the case of biomedical applications the objective is to control the rate of coating degradation and to study the effects of drugs as corrosion inhibitors. To improve biocompatibility, Ca and P are being incorporated into the oxide layer, to achieve a final composition close to hydroxyapatite.

HONORARY FELLOWSHIP

Ir. Antoine Pourbaix

For the first time an EFC Honorary Fellowship has been awarded. This will be conferred on **Antoine Pourbaix** at EUROCORR 2015 in Graz. This is in recognition of his outstanding commitment to the European Federation of Corrosion and its committees and the support of its mission and activities for many decades. He has been pro-active and at the forefront in the evolution of the EFC as representative of one of the EFC Founding Member Societies CEBELCOR in the General Assembly and as an active and long lasting member of the Board of Administrators (BoA)

and Science and Technology Advisory Committee (STAC). Furthermore, his contributions to international networking and collaboration across the borders of the EFC, among others as President of the International Corrosion Council ICC, are greatly appreciated and acknowledged.

Further information on this Honorary Fellowship can be found on the EFC website

<http://www.efcweb.org/Honorary+Fellow.html>

MEMBER SOCIETY AND AFFILIATE MEMBER NEWS AND PROFILES

BELGIAN CENTRE FOR CORROSION STUDY (CEBELCOR)

CEBELCOR was founded in 1951 with the aim of combating corrosion by all means. The major productions of CEBELCOR, as fundamental research, applied research and industrial applications are summarised at

<http://www.cebelcor.org/activities.lasso>.

Dissemination of information is an important aim of CEBELCOR: it is the ambition of this site to provide free access to all the publications of CEBELCOR. Currently, the most recent technical reports are available for download at

<http://www.cebelcor.org/publications.lasso>,

including two reports on potential-pH equilibrium diagrams for important systems at temperatures up to 300°C: for the Fe-H₂O system and for the Fe-Cl-H₂O system. These diagrams were prepared by Yang Xi-Zhen, who carefully reviewed the best thermodynamic data.

These diagrams are highly reliable.

Recently, a number of studies on sulfide-containing environments have been made available on this site: E-pH equilibrium diagrams for the systems S-H₂O, Fe-S-H₂O and Fe-Cr-S-H₂O, some at higher temperatures, experimental studies, industrial corrosion cases etc. Some reports deal with the mechanisms of localised corrosion of C-steel and Cr-stainless steel in H₂S environments. These mechanisms are specific because of the absence of oxygen. Follow the link to publications (see <http://www.cebelcor.org/publications.lasso>) and search sulfide.

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THE AUSTRALASIAN CORROSION ASSOCIATION

Supported by a 6.4% growth in membership last year, The Australasian Corrosion Association Inc (ACA) continues to conduct a large range of corrosion technical activities, in the Australian and New Zealand regions. Below is an update of some of its more recent major technical events.



Protective Coatings Preventing Corrosion,



organised by The Coatings Technical Group, was held on Thursday 19 March 2015 in Adelaide. This saw 45 delegates from a broad cross section of the industry in attendance, including several industry experts sharing their

knowledge and investigating ways to improve the longevity of protective coatings in a variety of applications and environments.

There was also a session on the recently released AS/NZS 2312.1 – Paint Coatings & AS/NZS 2312.2 – Hot Dip Galvanizing.

The Corrosion Management experiences in the Water & Waste Water Industry,



organised by The Water & Water Treatment Technical Group, took place in Melbourne on Thursday 26 March 2015. Over 100 delegates from a broad cross section of the industry were in attendance.

This event covered and investigated ways of protecting and maintaining our water assets from corrosion.

The ACA Protecting Infrastructure against Corrosion Seminar and exhibition,

organised by The New Zealand Branch of the ACA, was held in Auckland on Thursday 14 May 2015. This event covered ways to better protect our vital assets by use of durability planning. This event attracted over 60 delegates and a range of speakers from a broad cross section of the industry.



Remote Inspection & Identification of Hidden Corrosion in the Oil & Gas Industry,



organised by The ACA's Petroleum & Chemical Processing Industry Technical Group (PCPI TG), was held in Melbourne on Thursday 21 May 2015. Over 50 delegates representing a cross section of the Oil & Gas

Corrosion Industry were in attendance. The event looked at the latest challenges and developments in the materials engineering and corrosion control for both Onshore and Offshore environments, focusing on remote inspection and identification of hidden corrosion.

Coming up soon:

Corrosion & Prevention 2015 Conference



From 15th-18th November 2015 the ACA will host its annual ACA conference at the Adelaide Convention Centre. This will be a 4 day gathering of global experts to discuss the latest information concerning corrosion mitigation. Titled "Corrosion & Prevention 2015", the conference will comprise a program of keynote presentations and a range of industry 'streams', with an exhibition - showcasing products and services of the corrosion mitigation industry. Approximately 500 delegates are expected to attend from industries such as protective coatings, water, defence, building and construction, mining, oil & gas, cathodic protection, power and more.

The Preliminary Technical and Social Program can be viewed at <http://www.acaconference.com.au/>



Adelaide Convention Centre, Australia

BELGIAN ASSOCIATION OF SURFACE FINISHING (VOM)

The mission of VOM is to provide general and technical information related to all disciplines in surface treatment, as well as to represent our sector towards industry and government.

VOM encompasses the widest range of surface activities, as there are chemical, mechanical and thermal surface treatments, as well as metallic, ceramic and organic coatings. Special interest is also devoted to environmental regulations and issues of quality assurance.

Our 300 members consist of surface treatment customers, OEM-companies, principals, subcontractors, jobcoaters, suppliers of chemicals and equipment, survey and expertise agencies, research institutions, universities, etc.

VOM's services:

VOM offers a wide variety of information through courses, plant visits and seminars, which are related to all disciplines of surface treatment. Members can also call upon the VOM for organizing customized training activities within their company.

The monthly magazine VOM INFO and the monthly digital newsletter provide up to date information and are therefore an ideal communication medium for reaching out to your target customers.

VOM closely cooperates with related associations, R&D centres and training institutions – domestic as well as foreign.

VOM members obtain discounts, or free of charge participation to various training activities (courses, seminars, etc).

Through committees consisting of experienced and specialized industry participants, VOM establishes best practice recommendations for specific surface treatment applications.

VOM is the general license holder in Belgium for the label Qualisteelcoat (<http://www.qualisteelcoat.net>).

VOM encourages and supports the dialog between customers, service providers, and suppliers. An example of such initiative is the organization of EUROFINISH, the European trade fair for surface treatment technology. In 2015 the 11th anniversary edition took place on 10 & 11 June 2015 in Leuven. (<http://www.eurofinish.be>)

VOM hosts several international associations including the European Committee of Surface Treatment (CETS, website: <http://www.cets-surface.eu>) and the NACE section Benelux.

The website <http://www.vom.be> serves as the on-line meeting point for our members

So, if you are looking for a specific technology, a technical training, a contact address, a change in the environmental regulation or normalisation, don't hesitate to contact us.

VOM

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EFC-NACE COOPERATION

Co-operative Agreement Signed

Last year, leaders from NACE International and the European Federation of Corrosion (EFC) formalized a cooperative relationship which is intended to provide additional benefits to members of both organizations and support the educational missions of both organizations.



The three-year agreement was signed by NACE International CEO, Bob Chalker, and Scientific Secretary of EFC, Dr. Roman Bender. Designed to increase cooperation and communication between the two organizations in their efforts to promote corrosion prevention and control strategies, the agreement includes benefits for members such as

reduced rates on publications and increased collaboration on technical information exchange and standards development. "NACE International and the EFC share many common goals," said NACE CEO Bob Chalker. "By signing this agreement we are pledging to bring our members more valuable benefits, and we will seek additional opportunities to support corrosion professionals throughout the world through our cooperative efforts."

NACE International and the EFC will work together with a focus on the advancement of corrosion control technology in support of the mission to protect people, assets and the environment from the effects of corrosion. Specific the benefits to NACE and EFC

members include a 20% discount on publications from both organizations for all members of NACE International and EFC. Additionally, both organizations have pledged the participation and presence of their executive leadership at each other's annual conference, and both organizations have committed to exhibiting in each other's annual conference and exposition. The leaders from NACE International and EFC have agreed to meet several times each year to explore current and future opportunities for collaboration and planning. They will focus on strategic issues of importance to the members of each organization and the corrosion industry.

EFC MEMBER SOCIETIES AND AFFILIATE MEMBERS

A full listing of our European and International EFC Member Societies and Affiliate Members can be found on the EFC website at:

Member Societies: <http://www.efcweb.org/Who we are/Member Societies>

Affiliate Members: <http://www.efcweb.org/Who we are/Affiliate Members>

EFC ADMINISTRATION UPDATE

President:	Fatima Montemor, Lisbon, Portugal
Vice President:	Damien Féron, Gif-Sur-Yvette, France
STAC Committee Chairman:	Arjan Mol, Delft, The Netherlands
Scientific Secretary:	Roman Bender, Frankfurt am Main, Germany
Frankfurt Secretariat:	Willi Meier / Ines Honndorf / Dagmar Glänzer
Paris Secretariat:	Marcel Roche / Pascale Bridou Buffet
London Secretariat/Honorary Treasurer:	Julija Bugajeva
EFC Newsletter Editor:	Douglas Mills
Assistant Editor:	Ruth Bingham

NEWS FROM THE EFC WORKING PARTIES

EFC WORKING PARTY 14: COATINGS

Meeting on Application of Electrochemical Techniques to Organic Coatings (AETOC)

The 9th edition of the international workshop "Application of Electrochemical Techniques to Organic Coatings" (AETOC) took place from 22nd until 25th of April 2015 in Sainte Marie de Ré (Ré Island) near La Rochelle, France. This workshop was created by the Coatings Working Party for an intensive exchange and fruitful discussions amongst scientists and engineers being active in the investigation of organic coatings using electrochemical techniques. It offers a unique occasion to meet all major experts in this field and combines two topics which are usually not found in such a focused workshop format during other conferences on coatings or electrochemistry.

After initiation in Schliffkopf (Germany) in 1999, this workshop has been organised as an event of the EFC Working Party Coatings every two years and took place previously in Jurata (Poland), Sintra (Portugal), Villard de Lans (France), Bayona (Spain), Grado (Italy), Mons (Belgium) and Emmetten (Switzerland).

This time the workshop has been organised by Sébastien Touzain, who invited at the beginning the participants to visit the laboratory LaSIE, University of La Rochelle. The workshop was then continued at Hotel Les Grenettes on the very typical Ré Island, where about thirty five participants listened to the 18 presentations delivered over two and half days. These often gave rise to intense and fruitful discussions. To give flavour of the conference topics, the titles, authors and a very short synopsis of about half the papers is given below.

Hilke Verbruggen from Vrije Universiteit Brussel, Belgium, discussed 'Raman spectroscopy in addition to electrochemical techniques for studying multiple-action self-healing coatings'. Raman spectroscopy enabled determination of where the capsules were positioned in the coating, and allowed distinction between filled and empty capsules.

'EIS investigation of the impact of post-treatments on prepainted steel' was delivered by Mireille Poelman from Materia Nova, Mons, Belgium. Different post-treatments e.g. plasma deposition or hydrophilic or (super)hydrophobic sol gel coatings gave differing results.

'Evaluation of the corrosion protection properties of waterborne acrylic coatings containing CeO₂ particles' by Michele Fedel from the University of Trento, Italy, indicated lower delamination rates and reduced blistering for the systems containing 0.5 and 1.0 wt% of CeO₂.

'Correlation between conventional and accelerated tests for powder coatings used on pre-treated steel' by J. Molina from Universitat Jaume I. Castellón, Spain, found that the ACET technique (24 hours cyclic test with a combination of DC and AC measurements, cathodic polarization and relaxation steps) correlated well with conventional tests to predict the long-term performance of the coating.

Andrzej Miszczyk from Gdansk University of Technology, Gdansk, Poland, gave 'Determination of time dependence of coating electrical parameters during exposure using Principal Component Analysis' and showed how the use of this approach helps deconvolute the complex time response that wet coated systems often have to the input of variable frequency AC signals.

Carmen Pérez from University of Vigo, Vigo, Spain, described the 'Assessment of ZnO nano particles as anticorrosive pigment in hybrid sol-gel films' and, using evaluation by EIS, revealed a clear effect of ZnO nanoparticles on the barrier properties of the film.

'Electrochemical evaluation of hybrid sol-gel coatings for the improvement of metallic biomaterials performance' by Julio Suay from ESID, Universidad de Castellón, Spain, demonstrated that sol-gel coatings type (OSiR1R-) x-(OSiR2R-) significantly accelerate the osseointegration of dental implants made from titanium.

Dao Trinh from the University of La Rochelle, France, discussed 'In-situ monitoring of organic coating swelling by dynamic mechanical analysis [DMA] and scanning electrochemical microscopy [SECM]' and showed that the dimensional changes of the model polyepoxide resin type DGEBA/DAMP resin during water absorption were less than 6% (< 10 μm) for both free film and coating.

'Investigating the separation of anodic and cathodic defects on organic coatings' by A. C. Bastos from University of Aveiro, Portugal, indicated that there is a strong tendency for anodic and cathodic processes to proceed in separated electrodes attributed to a strong variation in local pH.

And finally, in 'Analysis of Electrochemical Noise Measurement (ENM) on an organically coated metal', Douglas J. Mills from University of Northampton, UK, presented a mathematical model. This was compared against experimental results and it was found inter alia that σ_i (current noise) (and hence R_n) is dominated by the coating when the coating's resistance is $> 1\text{E}7$ ohms-cms².

During round tables, different subjects dealing with the workshop topic were also discussed and debated in a cordial atmosphere. These included:

Is the Brasher –Kingbury relation still useful/valid?

Natural ageing versus artificial ageing - What are the best methods for evaluation of self-healing coatings?

The main (non food related) social event was a 20 km biking tour on the island around the picturesque villages of Saint Martin de Ré, including tasting visits at a chocolate producer and a wine/pineau producer. The official dinner was held at Hotel Mercure in La Rochelle with a superb scenic view of the old part of La Rochelle and particularly its famous towers. During this dinner, all the participants were invited to attend the 10th AETOC workshop which will be held in 2017 in the Black Forest in Germany, organized by Wolfram Fürbeth.



EFC WORKING PARTY 15: CORROSION IN REFINERY INDUSTRY

SPRING MEETING OF THE WORKING PARTY

The annual spring meeting of the Working Party 15 "Corrosion in Refinery Industry" took place on 14th April 2015 and it was kindly hosted in Leiden, The Netherlands, by Nalco-Champion. The meeting was attended by 43 participants from Europe and Russia. The main topic of exchange of information and discussion were corrosion failures in specific refinery conditions, high temperature hydrogen attack of carbon and risk based inspection. Corrosion management and education were also discussed. Advanced monitoring techniques were also presented in relation with their application in refinery plants.

The next WP 15 Corrosion in the Refinery Industry meeting will be held during the EUROCORR 2015 Congress in Graz, Austria on the 9th of September 2015 and will cover the «hot topics» affecting corrosion in the refinery industry.

If you wish to have more information on the activities of the group (including all the minutes and presentations of the last meetings) please visit our homepage:

<http://www.efcweb.org/Working+Parties/WP+15.html>

EFC WP 15 Corrosion in the Refinery Industry Group would like to express its thanks to Nalco-Champion for hosting the meeting in Leiden with special thanks to Valerie Bour-Beucler for her excellent organisation of the meeting.



RECENT EFC SPONSORED EVENTS

INTERNATIONAL SCIENTIFIC CONFERENCE CORROSION 2014 EFC Event No 376

The **Corrosion 2014** conference was held at Silesian University of Technology (Gliwice, Poland) from 18 to 21 November 2014.

The conference was a continuation of a series of the Polish Corrosion Society meetings, which are organised periodically every three years. The privilege of holding the 11th running conference was given to the Silesian University of Technology, namely its Chemical and Materials Engineering and Metallurgy faculties.

Corrosion 2014 was the major event in Poland in the field of corrosion science and engineering and was a great opportunity to meet and interact with academia, industry and end users within recent developments in all areas of corrosion and corrosion protection.

Organizing Committee: Maria SOZAŃSKA – Chairman; Wojciech SIMKA – Co-Chair; Agnieszka KRZĄKAŁA – Secretary; Agnieszka FORMALCZYK; Joanna MICHALSKA; Aleksander IWANIAK; Artur MACIEJ



Conference office



Prof. M.T. Mathew during his invited lecture

The conference provided a forum for scientists and engineers from 39 countries throughout the world interested in the degradation of materials and materials technologies for corrosion protection. 172 of participants took a part in the meeting; 87 oral and nearly 100 poster presentations were presented.



The historic Silver Mine in Tarnowskie Góry

”CORROSION PROTECTION. SYSTEMS-MATERIALS-COATINGS”

23rd Polish Scientific and Technical Conference

EFC Event No 398

The 23rd Polish Scientific and Technical Conference, entitled “*Corrosion Protection Systems-Materials-Coatings*” took place at the JAWOR holiday facility on 15th - 17th April 2015. The event was organised by the Polish Association of Chemical Industry Engineers and Technicians (Gliwice) and the NOT Polish Federation of Scientific and Technical Associations, City Council (Gliwice). 79 delegates were present, representing 36 institutions. During the conference, 25 papers were presented (2 in English), 24 posters were presented (8 in English) and 5 panel discussions were held.



Conference Room - paper being read by
M. Zubielewicz, PhD, Eng.

Topics covered included research on the causes and mechanisms of corrosion process mechanisms; the causes of corrosion of composites used in various fields impacting the economy; modern methods for the corrosion protection of composites used in different corrosive environments. Two competitions have been a regular feature of the conference for the last several years. One is a competition for the best poster, while the other is for the best paper submitted from among young chemical engineers dealing with corrosion protection.

According to the regulations, regardless of the 5-person jury appointed for both of the competitions, the posters were evaluated by all the members of the conference in a survey prepared by the organisers. The prizes included bronze moulded owl sculptures

(the bird of wisdom on the book of wisdom) and diplomas.



A team from the Building Structures Department of the Silesian Technical University won 3rd prize in the best poster competition

Integration of the corrosion protection societies, networking and experience exchange was made possible not only by the panel discussions and behind-the-scenes talks, but also by additional events, which included a coach trip to Równica mountain, a performance by the Orkiestra Salonowa and a gala dinner, at which the winners of the competitions were awarded prizes and diplomas.



Note that Issues 4 and 5 (2015) of the Corrosion Protection journal were devoted to the conference.

Report prepared by Conference Scientific Committee Chairman, Professor Witold Gnot

“MODERN CORROSION PROTECTION TECHNOLOGIES”

Ninth Annual Scientific-Technical Conference of the Polish Corrosion Society

EFC Event No 396

On 22-24 April 2015 the annual **PSK Scientific-Technical Conference "Modern technologies of anticorrosion"** was held at the Hotel Willa Port, Ostróda; Poland. The theme was "Modernity, standards and practice". The conference opened with the presentation of the Grand Corrosioner Award to Dr Andrzej Głębowicz.



Aleksandra Baraniak handed the Grand Corrosioner Award to Dr Andrzej Głębowicz

The first of the two plenary lectures was Hot Dip Galvanizing EN ISO 1461 - Specification, Inspection and Applications presented by Murray Cook, Director of European General Galvanizers Association and Secretary of ISO / TC 107 SC4. Requirements for the type of steel and guidelines and standards relating to the duplex system were discussed. The corrosion resistance of different alloys in long term immersion was highlighted and compared with behaviour of coatings under accelerated test conditions. The second plenary was Trends and Challenges in Developing an Industrial Coating System for Metals" was presented by Hubert Culik and Michael Hanke from Rembrandt Co, Helios group. Developing trends in the paint industry were outlined, including the use of biomaterials and biotechnology. Application of water-soluble, *high-solid* paints by electrophoresis as a single-component instead of two-component and

single layer systems instead of traditional epoxy / polyurethane were outlined.

Some papers from other sessions included, in the "Chemical and Petrochemical industry" session, Andrzej Miodek describing the method of coating the inner surfaces of tubes in heat exchangers with the use of thermosetting lacquer to provide a smooth chemical- and scale-resistant coating and Krzysztof Szymanski and Bożena Szczucka-Lasota presenting thermally sprayed coatings as the solution for increasing the service life of machines and equipment, pointing out areas of application of specific thermal spraying method.



A plenary session

The "Shipbuilding Industry" session included a paper by Łukasz Augustynski outlining the particular requirements for corrosion protection of steel structures for specific off-shore projects. In the "Metal Coatings" session Jacek Zasada, the President of the Polish Galvanizing Association, discussed hot dip galvanizing as an accessible, cost-effective and proven method of preventing corrosion of steel structures. Anna Bialecka discussed the impact of steel chemical composition and method of rolling on the thickness and durability of zinc coating. Artur Rusin introduced the use of hot dip galvanizing to protect reinforcing bars. Leszek Komorowski and Agnieszka Królikowska spoke on the effect of bismuth and lead addition on morphology and corrosion behaviour of hot dip zinc coating.

During the "Protective Coatings" session, Andrzej Głębowicz described a fast cure Zinc Silicate coating for low humidity applications, Krzysztof Warchoła described high temperature coatings for protection under insulation, Michael Jaczewski described anti-condensation and noise damping paints, Margaret Zubielewicz spoke on new paints containing waterborne polyurethane dispersions synthesized with bio based polyols and aliphatic prepolymer diisocyanate and Witold Majewski and Krzysztof Saramowicz discussed the basic properties of two types of passive fire protection: intumescent and cementitious fireproofing mortars.

In the "Infrastructure and Environment" session Pier Luigi Bonora stressed the importance of building design and maintenance expertise in prevention of disasters caused by corrosion. Jerzy Ziółko and Ewa Supernak described two systems for the protection of soil against fuel contamination with liquid effluents and Wojciech Sokolski spoke on corrosion aspects of applied soil and subsoil water protection methods against liquid fuel leaks from ground-based and underground steel tanks.

During the "Power Industry" session, the results of laboratory tests and industrial experiences from the use of protective coatings obtained with methods of thermal spraying and laser cladding on elements of boilers were presented by Ryszard Grzelka and Aleksander Iwaniak.

In the session "Architecture, powder coatings, aluminium," Gerard Przychodzień presented two methods of obtaining imitation wood with a special powder paint application: sublimation and "powder on powder". These methods also make it possible to obtain a powder paint coating with the appearance of marble or stone.

During the session on corrosion and protection of reinforced concrete, Ewa Kościńska described novel polyuria anti-corrosion coatings which are also abrasion-, water- and chemical resistant. A comparison of particular polymer concrete types with other constructive materials was presented by Rafał Kasak.

In the "Electrochemical protection" session, led by Committee Chairman Wojciech Sokolski, papers presented included Cathodic Protection Standardisation Issues and Review of Current Standards by Wojciech Sokółski, Experience in Cathodic Protection of Parallel Gas Pipelines by Hanna Matus and Results of Corrosion Rate Measurements for Steel in Soil in the Vicinity of Cathodically Protected Structures by Jezmar Jankowski and Wojciech Sokółski.

All abstracts in English could be found at <http://www.psk.org.pl> by EFC and PSK members.

Finally the Polish Association of Corrosion announced a presentation competition for a screenplay or film on corrosion and its consequences, intended for pupils aged 9-12 years, for distribution in primary schools.



Electrochemical Methods in Corrosion Research (EMCR)

EFC Event No 386

The 11th **Symposium in Electrochemical Methods in Corrosion Research (EMCR)** took place in Troia from 24 to 29 May 2015 as event number 386 of the European Federation of Corrosion. It was organised by Profs. João Fernandes and Fátima Montemor from Instituto Superior Técnico, Lisbon, Portugal, in collaboration with the Portuguese Society of Materials (SPM).

Maintaining the tradition of the previous conferences, EMCR 2015 has brought together experts to discuss and share the latest achievements in corrosion research and corrosion prevention using electrochemical methods. EMCR 2015 was an extraordinary forum for scientists to discuss the latest developments on electrochemistry and corrosion science.

The symposium programme included 4 exciting plenary lectures, high level oral presentations and poster exhibitions. A very nice technical exhibition was also organised in parallel to the Symposium.

The event took place in the fantastic Peninsula of Troia, a wonderful place with seemingly endless coastline of sandy beaches and blue sea. The Peninsula



is incorporated in the Natural Reserve of Sado Estuary, a large protected area with a wonderful natural life. The attendants had the opportunity to enjoy the surrounding nature as well as a Boat Trip offered by the Symposium organization.

A very pleasant dinner, with typically tasty Portuguese food, took place in Setúbal and the participants could enjoy the magnificent views of the Sado River.

We were very pleased to have the opportunity to host the EMCR 2015 in Troia.

Nuclear Corrosion Summer School – NuCoSS-15

EFC Event No 392

The **first summer school on nuclear corrosion, NuCoSS-15**, was held on July 5-10 in Bled, Slovenia. The school was hosted by the Slovenian National Building and Civil Engineering Institute (ZAG) and co-organised by WP 4, Paul Scherrer Institute (PSI), CEA-DEN, and University of Manchester. It combined a beautiful location with an extremely attractive programme packed with interesting lectures by 12 renowned experts. It was attended by (mostly young) scientists and engineers from all over the world (11 countries were represented) who not only received a comprehensive overview on the whole "nuclear corrosion story", but were also able to network with each other and with the lecturers during social and sporting activities.

Sincere thanks are expressed to the organisers (lead by B. Zajec (ZAG), S. Ritter (PSI), D. Féron &

F. Martin (CEA), and F. Scenini (University of Manchester)) and the supporters (AREVA GmbH, Cormet, EDF, IPS Elektroniklabor GmbH, Radioactive Waste Management Ltd., SCK-CEN, and Vattenfall) of the summer school as well as to all lecturers and attendees. Following on from this success, we hope to repeat this course in the near future.



ADVANCES IN CORROSION PREVENTION BY ORGANIC COATINGS

EFC Event No 381

The **Sixth International Conference: Advances in Corrosion Protection by Organic Coatings** took place on 20 - 22nd July at Christ's College, Cambridge, UK. This quinquennial conference was first inaugurated by the late David Scantlebury in 1989 and last held in 2009. The latest event, co-

organised by **Professor Stuart Lyon** (University of Manchester), Dr Douglas Mills (University of Northampton) and Dr Ruth Bingham, was attended by 42 delegates from 15 institutions. During the three days, 27 oral presentations were



delivered; abstracts were made available in a booklet and in electronic form on a memory stick.

On the Monday morning, a session on Perspectives was chaired by Simon Gibbon. During this Stuart Lyon (University of Manchester) presented Protective organic coatings: What we think we know, what we think we don't know and what we'd like to know; Martin Kendig (Thousand Oaks, California) presented An historical perspective on the corrosion protection by paints and Suzanne Morsch presented Water transport in organic coatings.

The afternoon session, Electrochemical Methods, was chaired by Stuart Lyon. In this Hiroyuki Tanabe (Dai Nippon Toryo Company, Tokyo) presented Study on protective performance of zinc-rich paint using an electrochemical method, Chris Griffiths (University of Swansea) presented Investigation of zinc phosphate as a corrosion inhibitor for organically coated steels (OCS) using scanning kelvin probe (SKP), Zoi Kefallinou (University of Manchester) presented Degradation mechanisms in epoxy-phenolic systems using bulk and localised impedance spectroscopy and Tian Yang Lan (University of Northampton) presented Investigation of the Properties of detached alkyd and vinyl coatings in relation to their anti-corrosive ability.

A second afternoon session, Cathodic Delamination, was chaired by Geraint Williams. In this session Huichao Bi (University of Oxford/Toronto) presented Cathodic delamination of unpigmented and pigmented epoxy coatings from mild steel, C. A. J. Richards (University of Swansea) presented Inhibition of organic coating delamination on hot-dip galvanized steel by use of graphene nano pigments and Wei Shi (University of Manchester) presented Localised scanning vibrating electrode investigation on coated mild steel under cathodic protection.

The Tuesday morning session on Inhibitors was chaired by Roger Newman. In this R. Subramanian (University of Swansea) presented Electrochemical impedance studies of phenyl phosphonic acid and graphene-containing polyvinyl butyral coatings on hot-dip galvanized steel in salt solutions, Tony Cook (University of Manchester) presented Mechanistic Aspects of the dissolution of pure aluminium in alkaline lithium-salt solutions and Reza Emad (University of Manchester) presented Influence of volume concentration of active inhibitor on properties and leaching of a model primer.

After morning coffee, a session on Analysis and Microscopy was chaired by Professor George Thompson. In this John Cooper (Horiba Scientific Company) presented Depth profile characterisation of embedded interfaces of organic and hybrid materials by pulsed RF glow discharge spectrometry, Yanwen Liu (University of Manchester) presented Corrosion protection of zinc alloy coated steel by strontium aluminium polyphosphate pigmented primer coatings and Ruth Bingham (University of Manchester) presented Novel use of GDOES to study corrosion of AA 2024-T3 in the presence and absence of inhibitors.

After lunch, delegates enjoyed a sightseeing tour or punting trip followed by afternoon tea. This was followed by a late afternoon session on Novel and Smart Coating Systems, chaired by John Sykes. In this Ruth Bingham (University of Manchester) gave the second part of her presentation, Bob Akid (University of Manchester) presented on Corrosion protection of AA 2024-T3 by modified hybrid titania-containing sol-gel coatings and Dmitry Shchukin (University of Liverpool) spoke on Incorporated nanocontainers for multifunctional coating.

A sherry reception in the Fellows' Garden was followed by a formal dinner in the Hall.

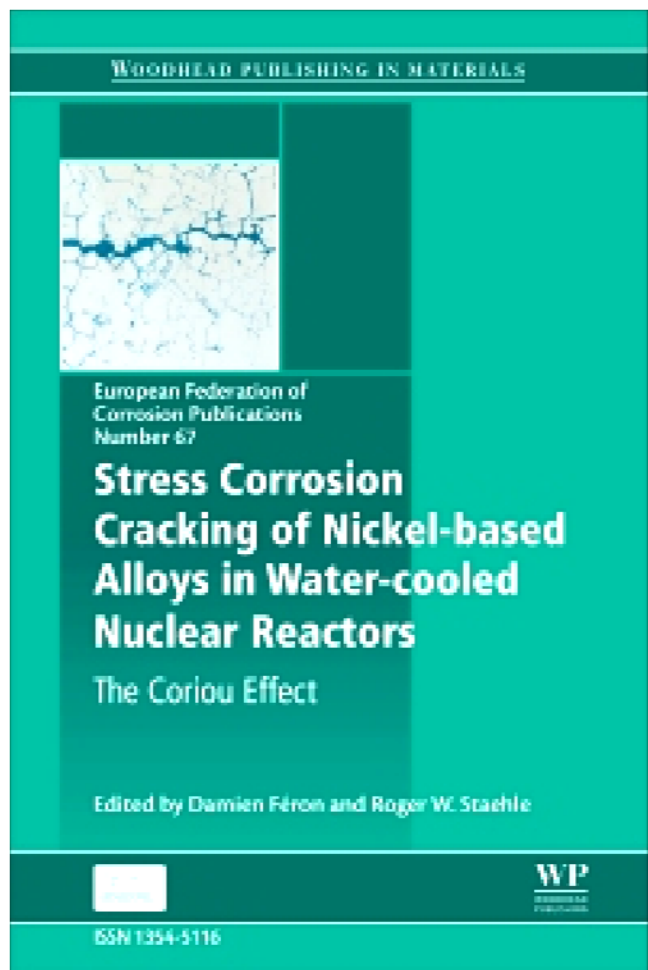
The Wednesday morning opened with a session on Applications, chaired by Dr Douglas Mills. Studying inhibition in multi-metal systems: cut-edge inhibition of coil-coated steel was presented by Lee Farren (University of Manchester); Laboratory electrochemical testing on a wide range of commercial paint coatings was described by Felipe Gomes (University of Northampton) and Application of organic coatings as an anticorrosion protection method in conservation of archaeological metal objects recovered from the sea was presented by Katarzyna Schaefer (NMM, Gdansk, Poland).

After morning coffee, a discussion/workshop was chaired by Simon Gibbon. The topics covered were Does coating resistance control corrosion (John Sykes, University of Oxford) and The best tests for anti-corrosive paints, and why (Douglas Mills, University of Northampton).

After lunch, a second session on Novel and Smart Coating Systems was chaired by Stuart Lyon. Recent developments in smart-release inhibitive pigments was presented by Geraint Williams (University of Swansea). Yang Su (University of Manchester) spoke on Graphene-based membranes as barrier films and protective coatings and the conference closed with Patrick Dodds (University of Swansea) presenting on Cathodic disbondment inhibition of hot-dip galvanised steel by group II cation containing smart-release corrosion inhibitors.



ADDITIONS TO THE EFC PUBLICATIONS SERIES



STRESS CORROSION CRACKING OF NICKEL BASED ALLOYS IN WATER-COOLED NUCLEAR REACTORS: THE CORIOU EFFECT (EFC 67)

Edited by Damien Féron and Roger W. Staehle

Key Features:

- Represents up-to-date reviews of recent research findings from leading experts in the field.
- Authoritatively and comprehensively reviewed by the Working Party 4 on Nuclear Corrosion.
- Showcases the excellent quality and technical accomplishments of Henri Coriou and CEA.

For more details or to pre-order visit

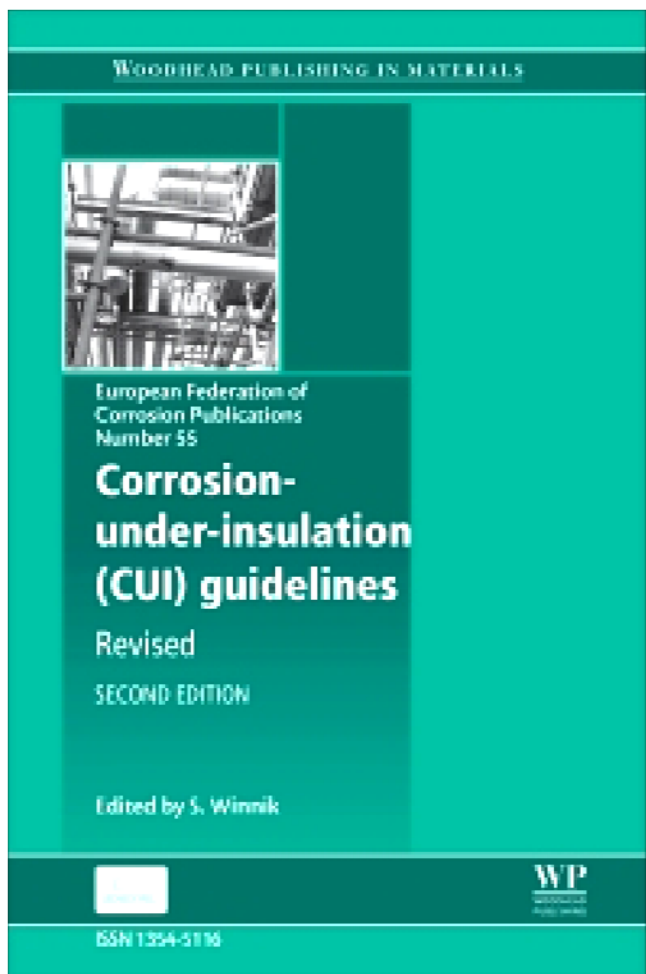
<http://store.elsevier.com/9780081000496>

Stress Corrosion Cracking (SCC) of Nickel Based Alloys in Water-Cooled Nuclear Reactors: The 'Coriou' Effect presents the latest information on brittle failure of metals in corrosive chemical environments under the influence of tensile stresses.

Nickel alloys are more resistant to SCC as well as high temperatures and have been widely used in more challenging environments such as nuclear power plants. However, these alloys can suffer SCC under certain conditions, resulting in component failure. A key figure in understanding the mechanisms of SCC in nickel alloys in water-cooled nuclear reactors is Henri Coriou of the CEA, France's leading center for nuclear research. This book assesses his work in the context of the latest research on SCC in nickel alloys in nuclear power plants.

Print Book ISBN: 9780081000496

Expected release: 1 January 2016



CORROSION UNDER INSULATION (CUI) GUIDELINES, 2ND EDITION (EFC 55)

Edited by S. Winnik

Key Features:

- Revised and fully updated technical guidance on managing CUI provided by EFC Working Parties WP13 and WP15.
- Contributions from a number of European refining, petrochemical and offshore companies.
- Extensive appendices that provide additional practical guidance on the implementation of corrosion-under-insulation best practice, collected practical expertise and case studies.

For more information, or to pre-order visit

<http://store.elsevier.com/9780081007143>

Print Book ISBN: 9780081007143

Expected release: 1 November 2015

For further information on this and all previously-published EFC publications please refer to our EFC website: <http://www.efcweb.org/List+of+EFC+Publications.html>

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EFC-appointed publisher for our noteworthy EFC “Greenbook” Series, **Woodhead Publishing** based in Cambridge, UK was acquired by Elsevier in August 2013.

For all EFC books published by **Woodhead Publishing** (EFC 38, 41-51, 53-55 and 65 onwards), please go to the Elsevier Book Store (http://store.elsevier.com/Woodhead-Publishing/IMP_209/)

To order any EFC “Greenbook” titles published with our former EFC “Greenbook” publisher **Maney Publishing**, please place orders through Oxbow Books: For all other customers in the **UK, EU and RoW**, the main landing page for the EFC Series is now: <http://www.oxbowbooks.com/oxbow/efcs>

For **North American** customers, the main landing page for the EFC Series is now: <http://www.oxbowbooks.com/dbbc/efcs>

Please note that volumes 1, 2, 3, 8, 11, 13, 18 and 23 are now out of print.



PREVIEW: EUROCORR 2017 & 2018

Joint EUROCORR 2017 - 20th ICC congress Prague, Czech Republic, 3-7 September 2017



Theme: *Corrosion Control for Safer Living*

Prague, an architectural, musical and cultural jewel of a city will be the location for EUROCORR 2017 which will be jointly hosted by The Czech Association of Corrosion Engineers and DECHEMA e.V. from 3-7 September 2017, Prague, Czech Republic.



The corrosion world is looking forward to an exciting event. EUROCORR, Europe's most renowned corrosion conference, and the global triennial International Corrosion Congress (ICC), will be merged, making this one of the largest global corrosion scientific events ever organised.

In Milan last year, the EFC Board of Administrators appointed Prague, the Czech Republic, as the host of the EUROCORR 2017. The applying institution, the Czech Association of Corrosion Engineers (AKI) and DECHEMA agreed to attempt to win hosting of ICC, taking place that year with the goal to merge both events.

In November 2014 the ICC's General Assembly elected Prague to be the host of the anniversary 20th International Corrosion Congress in 2017. The joint conference will be held from 3rd till 7th September, 2017, in the Prague Congress Centre, which is located just two underground stations from the amazing Prague's city centre.



Contact:

Czech Association of Corrosion Engineers (AKI)
VSCHT Praha (106), Technická 5
16628 Praha 6 - Dejvice, Czech Republic
Phone: +420 22044 4275 / Fax: +420 22044 4400
E-mail: aki@vscht.cz

Website: <http://www.eurocorr2017.org>;
<http://www.20thicc.com>

NEWS ON EUROCORR 2018 Krakow, Poland, 9-13 September 2018

EFC Member Society PSK, the Polish Corrosion Society, will be your host for EUROCORR 2018 in the beautiful city of Krakow, one of the oldest cities in Poland. So put a trip to Poland on your corrosion calendar!

Contact:

Polish Corrosion Society (PSK)
Elblaska 133A
80-718 Gdansk, Poland
Website: <http://www.psk.org.pl>



EFC WORKING PARTY INDEX

The EFC currently has twenty active Working Parties (WPs) and one Task Force listed here below, each concerned with a different aspect of the corrosion of metals, alloys and polymer materials. Activities of the EFC Working Parties/Task Force include: collaborative research and testing programmes; organisation of workshops, seminars and conferences; preparation of state-of-the-art reports, guidelines and proceedings for publication as volumes in the EFC Series and the organisation of sessions at EUROCORR.

Membership to the EFC Working Parties is available as of right to all EFC members belonging to both European and International EFC Member Societies or to EFC Affiliate Members, including companies or universities/research centres. Anyone wishing to join one of the Working Parties listed below should apply to the appropriate Working Party Chairman. Please revert to the EFC website at <http://www.efcweb.org/wp> for full details on Working Party activities or contact EFC Scientific Secretary, Roman Bender (e-mail: bender@dechema.de).

EFC WORKING PARTY 1: CORROSION AND SCALE INHIBITION

Chair: Prof. Günter SCHMITT, IFINKOR (Institute for Maintenance and Corrosion Protection Technologies nfpLtd.), Iserlohn, Germany; E-mail: guenter.schmitt@ifinkor.de

EFC WORKING PARTY 3: CORROSION BY HOT GASES AND COMBUSTION PRODUCTS

Chair: Prof. Michael SCHÜTZE, DECHEMA-Forschungsinstitut, Frankfurt am Main, Germany;
E-mail: schuetze@dechema.de

EFC WORKING PARTY 4: NUCLEAR CORROSION

Chair: Dr. Damien FÉRON, CEA-Saclay, "Service of Corrosion" SCCME, Gif-Sur-Yvette, France;
E-mail: damien.feron@cea.fr

EFC WORKING PARTY 5: ENVIRONMENT SENSITIVE FRACTURE

Chair: Dr. Krzysztof WOLSKI, Centre SMS - UMR CNRS 5146, École des Mines de Saint-Etienne, Saint-Etienne, France; E-mail: wolski@emse.fr

EFC WORKING PARTY 6: SURFACE SCIENCE AND MECHANISMS OF CORROSION AND PROTECTION

Chair: Prof. Philippe MARCUS, École Nationale Supérieure de Chimie de Paris, Paris, France;
E-mail: Philippe-Marcus@chimie-paristech.fr

EFC WORKING PARTY 7: CORROSION EDUCATION

Chair: Prof. Andreas HEYN, Bundesanstalt für Materialforschung und -prüfung, Berlin, Germany;
E-mail: Andreas.Heyn@bam.de

EFC WORKING PARTY 8: PHYSICAL-CHEMICAL METHODS OF CORROSION TESTING

Chair: Dr. J.M.C. Arjan MOL, Delft University of Technology, Department of Materials Science and Engineering, Delft, The Netherlands; E-mail: j.m.c.mol@tudelft.nl

EFC WORKING PARTY 9: MARINE CORROSION

Chair: Dr. Ulf KIVISÄKK, AB Sandvik, Materials Technology R&D, Sandviken, Sweden;
E-mail: ulf.kivisakk@sandvik.com

EFC WORKING PARTY 10: MICROBIAL CORROSION

Chair: Dr. Pierangela CRISTIANI, RSE - Ricerca sul Sistema Energetico S.p.A., Milan, Italy;
E-mail: pierangela.cristiani@rse-web.it

EFC WORKING PARTY 11: CORROSION OF STEEL IN CONCRETE

Chair: Prof. Michael RAUPACH, Aachen University, Institute for Building Materials Research, Aachen, Germany; E-mail: raupach@ibac.rwth-aachen.de

EFC WORKING PARTY 13: CORROSION IN OIL AND GAS PRODUCTION

Chair: Mr. Steve PATERSON, Shell U.K. Ltd., Aberdeen, United Kingdom;

E-mail: steve.paterson@shell.com

EFC WORKING PARTY 14: COATINGS

Chair: PD Dr.-Ing. Wolfram FÜRBEETH, DECHEMA-Forschungsinstitut, Frankfurt am Main, Germany;

E-mail: fuerbeth@dechema.de

EFC WORKING PARTY 15: CORROSION IN THE REFINERY INDUSTRY

Chair: Dr. François ROPITAL, IFP Energies nouvelles, Direction Chimie et Physico Chimie Appliquées, Département Electrochimie et Matériaux, Solaize, France;

E-mail: francois.ropital@ifpen.fr

EFC WORKING PARTY 16: CATHODIC PROTECTION

Chair: Mr. Jérôme CROUZILLAC, BAC Corrosion Control, Voisins-le-Bretonneux, France;

E-mail: j.crouzillac@bacfrance.com

EFC WORKING PARTY 17: AUTOMOTIVE CORROSION

Chair: Dr. Fouzia HANNOUR, Qatar National Research Fund, P.O. Box 10000, Doha, Qatar;

E-mail: fhannour@qnr.org

EFC WORKING PARTY 18: TRIBOCORROSION

Chair: Prof. Stefano MISCHLER, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland;

E-mail: stefano.mischler@epfl.ch

EFC WORKING PARTY 19: CORROSION OF POLYMER MATERIALS

Chair: Dipl.-Ing. Jürgen HEINEMANN, TU Darmstadt, Zentrum für Konstruktionswerkstoffe, Darmstadt, Germany; E-mail: heinemann@mpa-ifw.tu-darmstadt.de

EFC WORKING PARTY 20: CORROSION AND CORROSION PROTECTION OF DRINKING WATER SYSTEMS

Chair: Dr. Johann Wilhelm ERNING, Bundesanstalt für Materialforschung und –prüfung, Berlin, Germany;

E-mail: wilhelm.erning@bam.de

EFC WORKING PARTY 21: CORROSION OF ARCHAEOLOGICAL AND HISTORICAL ARTEFACTS

Chair: Dr. Delphine NEFF, Archaeomaterials and Alteration Prediction Laboratory, SIS2M/LAPA CEA/CNRS, CEA Saclay, Gif-sur-Yvette, France; E-mail: delphine.neff@cea.fr

EFC WORKING PARTY 22: CORROSION CONTROL IN AEROSPACE

Chair: Mr. Theo HACK, EADS Innovation Works, Munich, Germany;

E-mail: theo.hack@eads.net

In addition:

EFC TASK FORCE ON CO₂-CORROSION IN CCS-APPLICATIONS

Chair: Dr. Ralph BÄSSLER, Bundesanstalt für Materialforschung und –prüfung, Berlin, Germany;

E-mail: ralph.baessler@bam.de

EFC TASK FORCE ON CORROSION RELIABILITY OF ELECTRONICS DEVICES

Chair: Prof. Rajan AMBAT, Technical University of Denmark (DTU), Centre for Electronic Corrosion, Lyngby, Denmark; E-mail: ram@mek.dtu.dk

EFC CALENDAR OF FORTHCOMING EVENTS AND COURSES

(AS OF JULY 2015)



DATE/VENUE	CONFERENCE / COURSE	CONTACT
2015		
06–10 September 2015 Graz, Austria	EUROCORR 2015 <i>"Earth, Fire, Water, Air, Corrosion happens everywhere"</i> (EFC Event No 391)	ASMET Prof. Gregor Mori / Mrs. Dworak Franz-Josef-Str. 18 8700 Leoben, Austria E-mail: Eurocorr2015@asmet.at Website: http://www.eurocorr2015.org
15-17 September 2015 Budapest, Hungary	HUNGAROKORR 2015 <i>International Corrosion Science Conference</i> (EFC Event No 399)	PMKIK E-mail: nagy.andrea@pmkik.hu Website: http://www.corrosion.hu/index.html
27-30 September 2015 Portorož, Slovenia	ICMT23 <i>23rd International Conference on Materials and Technology.</i>	Vesna Nahtigal Institute of Metals and Technology Lepi pot 11 1000 Ljubljana Slovenia E-mail: icmt23@imt.si Website: http://icmt23.com/en/
28–30 September 2015 Frankfurt a. M., Germany	Korrosion - Grundlagen und Untersuchungsmethoden <i>Training course</i> <i>Language: German</i>	DECHEMA-Forschungsinstitut Nicola Größ / Heidi Weber-Heun Theodor-Heuss-Allee 25 60486 Frankfurt am Main, Germany E-mail: kurse@dechema.de Website: http://dechema-dfi.de/Korrosion.html
30 September – 2 October 2015 Liptovský Mikuláš, Slovakia	Corrosion and Surface Treatment in Industry 2015 <i>CSTI2015</i> (EFC Event No 401)	Congress Secretariat CSTI 2015 E-mail: csti@tuke.sk Website: http://web.tuke.sk/csti2015/
04–07 October 2015 Orlando, FL, USA	Titanium 2015 <i>31st Annual Conference and Exhibition of the International Titanium Association</i>	Jennifer Simpson International Titanium Association 2655 West Midway Blvd., Suite 300 Broomfield, CO 80020-7186, USA E-mail: conference@titanium.org Website: http://www.titanium.org/
04–09 October 2015 Taipei, Taiwan	ISE Annual Meeting 2015 <i>66th Annual Meeting of the International Society of Electrochemistry</i>	International Society of Electrochemistry Rue de Sébeillon 9b 1004 Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org

DATE/VENUE	CONFERENCE / COURSE	CONTACT
11–16 October 2015 Phoenix, AZ, USA	228th ECS Meeting <i>Fall Meeting 2015 of the Electrochemical Society</i>	The Electrochemical Society 65 South Main Street, Building D Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/meetings/biannual/fut_mtg.htm
15–17 October 2015 Istanbul, Turkey	Paint Expo Eurasia 2015	FairFair GmbH Max-Eyth-Straße 19 72644 Oberboihingen, Germany Website: http://www.paintexpo.com/
15–17 October 2015 Frankfurt a. M., Germany	Elektrochemie für Naturwissenschaftler, Ingenieure und Techniker <i>Experimentalkurs</i> <i>Language: German</i>	DECHEMA-Forschungsinstitut Nicola Gruß / Heidi Weber-Heun Theodor-Heuss-Allee 25 60486 Frankfurt am Main, Germany E-mail: kurse@dechema.de Website: http://dechema-dfi.de/Elektrochemie.html
26–30 October 2015 INSTN CEA Saclay, France	Fall School "Modelling of Corrosion"	Contact for registration and any further information: Mrs. Mireille Cestrieres E-mail: mireille.cestrieres@cea.fr
28-29 October 2015 Antwerp, Belgium	Corrosion under Insulation <i>Training course</i> <i>Language: English</i> (EFC Event No 404)	Fleming Europe Andrea Trnovec Tel.: +421 257 272 183 E-mail: andrea.trnovec@flemingeurope.com Website: http://oilgas.flemingeurope.com/corrosion-insulation-training/program
28–30 October 2015 Frankfurt a. M., Germany	EFC Workshop "Insight, Mechanisms and Modelling in High Temperature Corrosion" <i>Research on high temperature corrosion</i> (EFC Event No 393)	DECHEMA-Forschungsinstitut Prof. Michael Schütze Theodor-Heuss-Allee 25 60486 Frankfurt am Main, Germany E-mail: schuetze@dechema.de Website: http://www.dechema.de/efcws2015.html
05–06 November 2015 Frankfurt a. M., Germany	Electrochemical Impedance Spectroscopy <i>Training course</i> <i>Language: English</i>	DECHEMA-Forschungsinstitut Nicola Gruß / Heidi Weber-Heun Theodor-Heuss-Allee 25 60486 Frankfurt am Main, Germany E-mail: kurse@dechema.de Website: http://dechema-dfi.de/en/EIS.html
15-17 November 2015 Adelaide, Australia	Corrosion & Prevention 2015	The Australasian Corrosion Association Inc. PO Box 112 Kerrimuir VIC 3129, Australia E-mail: conference@corrosion.com.au Website: http://www.acaconference.com.au/

DATE/VENUE	CONFERENCE / COURSE	CONTACT
17 November 2015 Frankfurt a. M., Germany	Biokorrosion und Biofouling in wasserführenden Systemen <i>Training course</i> <i>Language: German</i>	DECHEMA-Forschungsinstitut Nicola Gruß / Heidi Weber-Heun Theodor-Heuss-Allee 25 60486 Frankfurt am Main, Germany E-mail: kurse@dechema.de Website: http://dechema-dfi.de/Biokorrosion.html
18-20 November 2015 Jastrzab/Poraj (near Czestochowa), Poland	18th All-Polish Corrosion Symposium APCS-2015 <i>New Achievements in Corrosion Research and, Engineering</i> (EFC Event No 400)	Prof. Henryk Bala Czestochowa University of Technology Department of Chemistry Al. Armii Krajowej 19 42-200 Czestochowa, Poland E-mail: hbala@wip.pcz.pl Website: http://www.symp-kor-apcs.wip.pcz.pl/index_eng.html
29 November – 4 December 2015 Boston, MA, USA	MRS Fall Meeting 2015 <i>2015 Fall Meeting & Exhibit of the Materials Research Society</i>	Website: http://www.mrs.org/fall2015/
14-17 December 2015 Hurgada, Egypt	EGYCORR 2015 <i>4th International Conference (32nd Annual) on Corrosion Mitigation and Surface Protection Technologies</i>	Egyptian Corrosion Society E-mail: info@egycorr.net Website: http://egycorr.net/
2016		
08-11 February 2016 Gulf Hotel in Manama, Kingdom of Bahrain	16th Middle East Corrosion Conference - 16MECC <i>Conference & Exhibition</i>	Bahrain Society of Engineers PO Box 835, Manama, Bahrain E-mail: bseng@batelco.com.bh Website: http://www.mecconline.org/
08-11 March 2016 Gwangju, Korea	18th ISE Topical Meeting	International Society of Electrochemistry Rue de Sebeillon 9b 1004 Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org/annmeet/next_meetings.php
11–15 March 2016 Vancouver, BC, Canada	CORROSION 2016 / NACE <i>Conference and Exhibition</i>	CaLae McDermott NACE Headquarters 1440 South Creek Drive Houston, Texas 77084-4906, USA E-mail: calae.mcdermott@nace.org Website: http://www.nace.org/
17-20 April 2016 Auckland, New Zealand	19th ISE Topical Meeting	International Society of Electrochemistry Rue de Sebeillon 9b 1004 Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org/annmeet/next_meetings.php

DATE/VENUE	CONFERENCE / COURSE	CONTACT
18-21 April 2016 Warsaw, Poland	Transport Research Arena 2016 <i>6th European Transport Research Conference</i> <i>"Moving Forward: Innovative Solutions for Tomorrow's Mobility"</i> (EFC Event No 398)	Road and Bridge Research Institute 1, Instytutowa Str. 03-302 Warsaw, Poland E-mail: office@tra2016.eu Website: http://www.traconference.eu/
19-22 April 2016 Karlsruhe, Germany	PaintExpo 2016 .	FairFair GmbH Max-Eyth-Str. 19 72644 Oberboihingen, Germany Website: http://www.paintexpo.de/
09-12 May 2016 Toronto, Canada	LTC2016 <i>6th International Workshop on Corrosion in Nuclear Waste Systems</i> (EFC Event No 403)	Fraser King Integrity Corrosion Consulting Ltd 3396 Stephenson Point Road Nanaimo, BC, Canada V9T 1K2 E-mail: info@ltc2016.ca Website: http://www.ltc2016.ca/
15-20 May 2016 Archipelago - Les Embiez, France	HTCPM 2016 <i>9th International Symposium on High-Temperature Corrosion and Protection Materials</i> (EFC Event No 402)	INPT - SAIC "HTCPM2016" 6 allée Emile Monso 31029 Toulouse Cedex 4, France E-mail: htcpm2016@inp-toulouse.fr Website: http://www.htcpm2016.com/
29 May-03 June 2016 San Diego, CA, USA	229th ESC Meeting <i>Spring Meeting 2016 of the Electrochemical Society</i>	The Electrochemical Society 65 South Main Street, Building D Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/meetings/biannual/fut_mtgs.htm
21-26 August 2016 The Hague, The Netherlands	ISE Annual Meeting 2016 <i>67th Annual Meeting of the International Society of Electrochemistry</i>	International Society of Electrochemistry Rue de Sébeillon 9b 1004 Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org
11-15 September 2016 Montpellier, France	EUROCORR 2016 <i>"Advances in linking Science to Engineering"</i> (EFC Event No 390)	CEFRACOR 28, rue Saint-Dominique 75007 Paris, France E-mail: eurocorr2016@cefracor.org Website: http://www.eurocorr2016.org
02-07 October 2016 Honolulu, HI, USA	230th ESC Meeting <i>Fall Meeting 2016 of the Electrochemical Society</i> <i>PRIME 2016</i>	The Electrochemical Society 65 South Main Street, Building D Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/meetings/biannual/fut_mtgs.htm

DATE/VENUE	CONFERENCE / COURSE	CONTACT
2017		
26-30 March 2017 New Orleans, LA, USA	CORROSION 2017 / NACE <i>Conference and Exhibition</i>	CaLae McDermott NACE Headquarters 1440 South Creek Drive Houston, Texas 77084-4906, USA E-mail: calae.mcdermott@nace.org Website: http://www.nace.org/
28 May–02 June 2017 New Orleans, LA, USA	231st ESC Meeting <i>Spring Meeting 2017 of the Electrochemical Society</i>	The Electrochemical Society 65 South Main Street, Building D Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/meetings/biannual/fut_mtgs.htm
18–23 June 2017 Rhodes, Greece	ICF 14 <i>14th International Conference on Fracture (ICF 14)</i>	Chair: Emmanuel E. Gdoutos E-mail: egdoutos@civil.duth.gr Website: http://www.icf14.org/
27 August–01 September 2017 Providence, RI, USA	ISE Annual Meeting 2017 <i>68th Annual Meeting of the International Society of Electrochemistry</i>	International Society of Electrochemistry Rue de Sébeillon 9b 1004 Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org/annmeet/next_meetings.php
03–07 September 2017 Prague, Czech Republic	EUROCORR 2017 & International Corrosion Congress-ICC <i>"Corrosion Control for Safer Living"</i> EFC Event	Czech Association of Corrosion Engineers (AKI) c/o Institute of Chemical Technology Prague Technicka 5 16628 Prague 6 – Dejvice, Czech Republic E-mail: aki@vscht.cz Website: http://www.eurocorr2017.org; http://www.20thicc.com and DECHEMA e.V. Theodor Heuss-Allee 25 60486 Frankfurt, Germany E-mail: eurocorr@eurocorr.org Website: http://www.eurocorr.org
2018		
15-19 April 2018 Phoenix, AZ, USA	CORROSION 2018 / NACE <i>Conference and Exhibition</i>	CaLae McDermott NACE Headquarters 1440 South Creek Drive Houston, Texas 77084-4906, USA E-mail: calae.mcdermott@nace.org Website: http://www.nace.org/
09-13 September 2018 Krakow, Poland	EUROCORR 2018 EFC Event	Polish Corrosion Society (PSK) Elblaska 133A 80-718 Gdansk, Poland Website: http://www.psk.org.pl

EFC MEMBERSHIP BENEFITS

EFC MEMBER SOCIETIES

(EUROPEAN AND INTERNATIONAL)

Working Parties Activities:

- Appointment of delegates to the EFC's 20 Working Parties, including the possibility of a delegate to become a future Working Party Chair and/or to organise special topic sessions at EUROCORR.

Appointed delegates have access to the restricted areas of the EFC Working Party pages on the EFC website which contain specific documents such as unconfirmed meeting minutes, the databank of WP members with their contact details, etc.

- Possibility to install on the restricted areas of members' own websites a link to permit direct downloading of past EUROCORR proceedings.

Congress and Exhibition advantages:

- Organisation of seminars and courses with the EFC endorsement and logo.
- Reduced registration fee of the society's members at annual EUROCORR conferences.
- Reduced registration to all EFC-sponsored events (with assigned event number).
- Discount on exhibitor booths at annual EUROCORR conferences.
- European Member Societies: eligibility to bid to become EUROCORR host organiser.

Publications:

- 30% discount for all society members on purchase of our 60+ EFC publications
- Possibility of co-authorship and publishing contributions to EFC Working Party Publications (EFC "Greenbook" Series) and to partner EFC's Journals.

AFFILIATE MEMBERS

Working Parties Activities:

- Appointment of delegates to the EFC's 20 Working Parties, including the possibility of a delegate to become a future Working Party Chair and/or to organise special topic sessions at EUROCORR.

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- Possibility to install on the restricted areas of their own websites a link to permit Affiliate Members' employees downloading of past EUROCORR proceedings.

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- Possibility of co-authorship and publishing contributions to EFC Working Party Publications (EFC "Greenbook" Series) and to EFC's partner Journals.

EFC MEMBER SOCIETIES

(EUROPEAN AND INTERNATIONAL)

EFC Administration:

- Participation in the EFC General Assembly with voting rights.
- Opportunity to nominate candidates for EFC awards and medals.
- Opportunity to nominate candidates for election to the EFC Board of Administrators and Science & Technology Advisory Committee.
- Availability of Affiliate Membership of the World Corrosion Organization (WCO) under the EFC-WCO agreement at no additional cost subject to the approval of the WCO Board of Administrators and the WCO General Assembly.
- Access to your organisation's website directly from the EFC website.

Advertising:

- Listing, advertising and promotion of any of the Member Society's corrosion-related events and courses in the continually-updated EFC "Calendar of Events" on the EFC website and in the electronic and hard-copy EFC newsletters distributed at EUROCORR.
- Free promotional write-ups of Member Society's past corrosion-related events in the EFC newsletters that are circulated in hard-copy at annual EUROCORR conferences and are also sent electronically to all corrosionists in the EFC database by the EFC Frankfurt secretariat.

AFFILIATE MEMBERS

EFC Administration:

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- Access to your organisation's own website directly from the EFC Website.

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