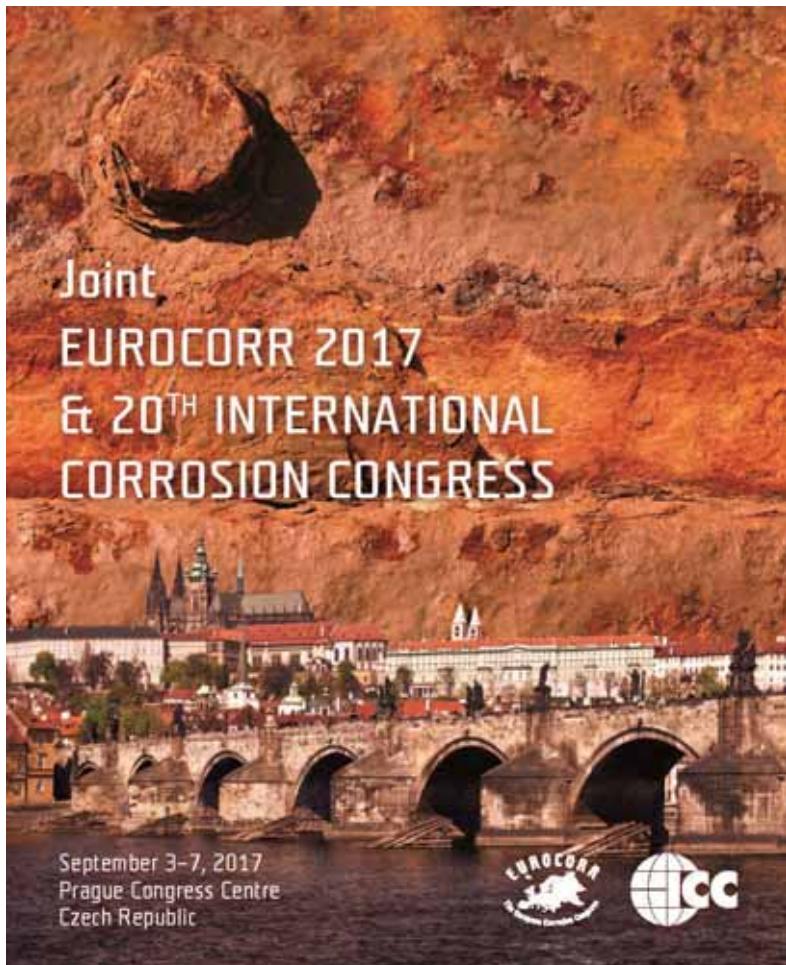


EFC NEWSLETTER

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



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Joint EUROCORR 2017 & 20th International Corrosion Congress Prague, Czech Republic, 3-7 September 2017 (EFC Event No. 417)

The EFC's annual conference EUROCORR, Europe's most renowned corrosion event, will take place in Prague, the Czech Republic, from September 3-7, 2017. For the first time in its history,

EUROCORR will be merged with the global triennial International Corrosion Congress (ICC), to become the largest scientific corrosion event ever organised in Europe.

The organisers, the Czech Association of Corrosion Engineers (AKI) and DECHEMA, are pleased to invite you to participate in the **Joint European Corrosion Congress EUROCORR 2017 & 20th International Corrosion Congress**. The joint event will cover all aspects of corrosion engineering, protection and science under the slogan “**Corrosion Control for Safer Living**”.

The Congress will be a unique networking opportunity for scientists, representatives of research institutions, universities and industry, and graduate students in a vibrant professional setting and atmosphere. The scientific programme will consist of plenary lectures by world-renowned corrosion specialists including **John Scully, Ivan Cole** and **Tetsuo Shoji**, along with more than twenty pointed keynote lectures and about eight hundred oral presentations. Twelve parallel sessions on a variety of topics will offer corrosionists from all over the world the opportunity to meet and present their research.

The excellent design of the Prague Congress Centre, the Congress venue, is ideal for hosting large-scale exhibitions in close contact with the participants.



Prague Congress Centre

A rich social programme has been carefully prepared to enhance further the exchange between congress participants. All accompanying events, including the welcome party, gala dinner, poster party, lunches and coffee breaks, will be covered by the registration fee.

In September 2017, Prague will become the capital of corrosion.

The natives of Prague call the city “The Mother of Cities”, “The Golden City”, or “The City of a Hundred Spires”.



Old Town Square

Visitors from all over the world consider it to be one of the most beautiful cities in Europe. The city's historical centre was rightfully added to the UNESCO List of World Cultural Heritage in 1993.

We sincerely hope you will be able to join us in September 2017 in Prague!

Tomáš Prošek
President of the Congress



Municipal House



Charles Bridge

Topics:

- Corrosion and Scale Inhibition
- Corrosion by Gases and Atmosphere
- Nuclear Corrosion
- Environment Sensitive Fracture
- Corrosion Mechanisms, Methods, Modelling and Monitoring
- Corrosion Education
- Marine Corrosion
- Microbial Corrosion
- Corrosion of Steel in Concrete
- Corrosion in Oil & Gas Production
- Coatings
- Corrosion in the Refinery Industry
- Cathodic Protection
- Automotive Corrosion
- Tribocorrosion
- Corrosion of Polymers and Advanced Materials
- Corrosion & Corrosion Protection of Drinking Water Systems
- Corrosion of Archaeological and Historical Artefacts
- Corrosion in Aerospace
- Corrosion of Biomaterials
- Failure Analysis and Lifetime Prediction
- Cultural Heritage and Protection

Key Dates:

Submission of abstracts:

17 January 2017

Notification of acceptance to authors:

28 April 2017

Submission of full manuscripts:

20 June 2017

Contact:

Local Organising Secretariat

GUARANT International

Na Pankráci 17

140 21 Prague 4

Czech Republic

Tel: +420 284 001 444

E-mail: eurocorr2017@quarant.cz

Website: <http://www.eurocorr2017.org/>

Organised by:



Hosted by:



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 contributing to corrosion prevention. Today, EFC is the largest organisation in Europe addressing this global problem. The increasing number and geographical diversity of new organisations joining the EFC testifies that this is a very well respected and prestigious organisation, providing a reference on the corrosion field all over the world.

The new EFC strategic plan aims at growing and expanding its technical-scientific leadership in Europe and beyond. In the international arena the EFC is creating new branches to strengthen partnerships with parts of the world that want to collaborate more closely with the EFC. The first one is the Qatar Branch which will kick off their activities by the end of 2016. In April 2016 an EFC delegation visited Qatar, being hosted by the Qatar National Research Fund (QNRF).

During this workshop very exciting discussions took place with stakeholders from Qatar and the Middle East.



QF facilities - Venue of the meetings between EFC and Qatari Institutions

The main areas of collaboration were identified and new activities will follow in the near future. This will be a unique opportunity for the EFC members to participate in various activities under the EFC flag.

Also in 2016 a new International Member Society, The Chinese Society for Corrosion and Protection (CSCP), has joined EFC, thereby opening new collaboration prospects overseas.

The EFC flagship event, the EUROCORR congress, has been continuously growing and presently attracts nearly a thousand delegates from more than sixty countries. EUROCORR is undoubtedly the highlight of the yearly agenda of corrosion and corrosion-related events and the dates are already saved in the agenda of all relevant participants in the field all over the world.

The EFC strategic plan is also aimed at attracting more young people to the EFC activities. With this in mind, the EFC is launching in 2016 the "Young EFC" network - a team of young, dynamic and motivated professionals that will strengthen the knowledge-based community within the EFC. Following the same strategic line, the EFC has implemented the EUROCORR Young Scientist Grant that, for the first time, this year will sponsor three young students, contributing to the strengthening of their research careers internationally. Under the Grant, young researchers, at Ph.D. 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 wish to express my gratitude to all the Member Societies and Affiliate Members for contributing to our activities and for strengthening the EFC as a reference in the corrosion field. Thank you for your support! The EFC can also support you to a large extent. The Member 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 the EFC, to raise the visibility of both institutions.

I cannot finish this letter without addressing the extraordinary support of all those that have the EFC at heart and that, voluntarily, give their time and constructive ideas to build the EFC. These include the past EFC President, the Science and Technology Advisory Committee (STAC), particularly the STAC Chairman, and the current Vice-President, for their commitment in strengthening the scientific activities.

I also want to give a word of appreciation to the high level professional people at the EFC secretariats, in Paris, London and Frankfurt am Main, who handle the EFC daily issues.

Presently, and for the future, the EFC vision and strategy are, for the first time, very well-defined: to increase the EFC value and brand, and to become an internationally recognised reference in the corrosion field. Therefore, I have been and remain committed to providing the leadership that the EFC requires to implement this strategy, and to achieve the EFC objectives and ambitions in the future. I am looking forward to some great years ahead and I am honoured to have had this opportunity to serve as your President. Thank you very much.

I am looking forward to meeting you in Montpellier. Do enjoy EUROCORR 2016.

Sincerely yours,

Fátima Montemor

EFC President

EFC ADMINISTRATION UPDATE

President:

Fátima Montemor, Lisbon, Portugal

Vice President:

Damien Féron, Gif-Sur-Yvette, France

STAC Committee Chairman:

Arjan Mol, Delft, The Netherlands

Managing Officer:

Hélène Illaire, Paris, France

Scientific Secretary:

Roman Bender, Frankfurt am Main, Germany

Frankfurt Office:

Willi Meier / Ines Honndorf

Paris Office:

Marcel Roche / Pascale Bridou Buffet

London Office/Honorary Treasurer:

Julija Bugajeva

EFC Newsletter Editor:

Douglas Mills

Assistant Editor:

Ruth Bingham

EUROPEAN CORROSION MEDAL WINNER

Professor Lorenzo Fedrizzi

Lorenzo Fedrizzi received his degree in Chemical Engineering from the University of Padua. From 1989 to 1997 he was a Lecturer at the University of Trento's engineering faculty.

From 1998 to 2003 he was Associate Professor of Material Science and Technology at the University of Rome "La Sapienza" where he taught Corrosion and Corrosion Protection. Currently he is a full professor of Materials Science and Technology at the University of Udine, Italy, where he teaches Composite Materials Science and Technology and Corrosion at the Engineering Faculty. His main scientific interests are corrosion protection by coatings (organic, metallic and ceramic); materials durability; study of tribo-corrosion mechanisms; study and development of innovative coatings by sol-gel, PVD, CVD and thermal spraying technologies; corrosion behaviour of sintered metal parts; study, development and characterization of metal alloys. He has published more than 300 papers on these topics in international journals and conference proceedings.

Among other professional involvements he has been: Chairman of the Working Party "Coatings" of the European Federation of Corrosion (EFC) from 2001 - 2013, largely contributing to its success as one of the major sessions at the EUROCORR Congress, Director of the Laboratory "Metallurgy and surface technology of advanced materials" of Friuli Innovazione since (2006), Member and President of the Ph.D. jury in many European Universities, and, most recently (Jan. 2013 to Dec. 2014), he has been EFC President of the European Federation of Corrosion, serving EFC with a lot of dedication. He has had scientific responsibility of Research Units in many European research projects such as: FP7 - TRANSPORT 2 (2010); "EURAXLES" - Minimizing the risk of fatigue failure of railway axles; FP6: "MULTIPROTECT" - Advanced environmentally friendly multifunctional corrosion protection by nanotechnology (2005), and "NANO-HVOF" - The replacement of hard chromium coatings for mechanical components through high pressure nano-structure powder HVOF coatings" (2000 - 2003).

He is member of the Editorial Board of *Progress in Organic Coatings, Materials and Corrosion, Corrosion Engineering Science and Technology, The Open Corrosion Journal* and *Trattamenti e Finiture*. Inter alia he organised a successful Workshop on "Application of Electrochemical Techniques to Organic Coatings" at Grado, Italy, in 2009. It was particularly fitting that he used this occasion to honour his Mentor Professor Pier Luigi Bonora.

Lorenzo Fedrizzi is a researcher of strong methodological precision and a man of superior human quality, able competently to lead and balance research groups and heated assemblies locally and at the international level. Those who know him appreciate his courtesy, politeness and intellectual honesty. He is an extraordinarily "positive" and well appreciated teacher, always looks for the bright side of everything. In addition to his love for scientific research and teaching, Lorenzo has also three great passions: his family (wife and two daughters), his mountains (where he climbs, walks, treks, skis), and his bike which, together with a group of faithful friends, treks all over Europe.

Lorenzo has made fundamental contributions to the electrochemical techniques applied to surface and coating characterization (in particular to the electrochemical impedance spectroscopy technique) and to the knowledge of tribo-corrosion mechanisms. His intense research activities have always addressed the advancement of new research frontiers in the areas of corrosion technology, and no doubt will continue to do so for many years to come!

Professor Lorenzo Fedrizzi will be awarded his European Corrosion Medal by the EFC President at EUROCORR 2016's opening session in Montpellier.



EUROCORR YOUNG SCIENTIST GRANT WINNERS

The EUROCORR Young Scientist Grant will be awarded for the first time at EUROCORR 2016 in Montpellier, France. The EFC introduced this grant with the objective of stimulating interaction and collaboration within the international corrosion community by providing financial support to junior corrosionists, thus enabling them to visit and interact with other corrosionists at their respective institutes abroad.

The conditions of eligibility for the junior corrosionist are to be not older than 30 years of age and to participate in the EUROCORR taking place in the year when the award is granted. The co-applicant should be a member of an EFC Member Society and should preferably participate in the EUROCORR when the award is granted.

Each year a maximum of three EUROCORR Young Scientist Grants, up to a maximum of 1,500 Euros each, are to be awarded.

This year, the recipients of the grants will be:

- **Mr. Baiwei Zhu** (Jönköping University, Sweden) will visit Prof. Flavio Deflorian (University of Trento, Italy) in the frame of his Ph.D. studies: "*Optimization of aluminum alloys, the casting and the anodizing processes for high thermal conductive components*".
- **Ms. Elisabetta Di Francia** (Politecnico di Torino, Italy) will visit Dr. Delphine Neff (CEA/CNRS/University Paris Saclay, France) in the frame of her Ph.D. studies: "*Optimisation of a non-invasive laser cleaning procedure*".
- **Ms. Beatriz Mingo** (University Complutense of Madrid, Spain) will visit Prof. Mikhail Zheludkevich (Helmholtz Centrum Geesthacht, Germany) in the frame of her studies: "*Development of passive surface treatments for magnesium alloys*".

Further information about the EUROCORR Young Scientist Grant can be found on the EFC website at

<http://efcweb.org/EUROCORR+Young+Scientist+Grant.html>



PROFESSOR FRANCESCO MAZZA (1930-2016)



Professor Francesco Mazza passed away peacefully at home in Alessandria (Italy) after a short illness on Tuesday, April 19, 2016 at the age of 86. Francesco Mazza was a man full of interests and a keen sportsman. He began to practice athletics in his home

city, later distinguishing himself at the World University Games (Universiade) in Florence. His great passion was sailing, a sports activity for which he wrote several technical manuals, and which saw him ranking fifth at the Admiral's Cup Regatta (1977), one of the greatest world sailing races.

Having graduated in Chemistry at the University of Pavia, Mazza started his scientific career at the University of Modena and Milan in the group of Professor G. Bianchi. In 1966, he was a visiting scientist at Rensselaer Polytechnic Institute, Troy, New York, working with Professor N.D. Greene. Subsequently, his research moved towards the implications of electrochemical fundamentals in corrosion processes. Since 1971, he served as full professor of Corrosion and Protection of Metals in the Department of Physical Chemistry and Electrochemistry (now the Department of Chemistry) at the *Università degli Studi di Milano*. Retiring in 2005, Mazza remained in close connection with the corrosion scientific forum.

Author of over 120 publications, including monographs, articles and conference proceedings, Mazza was one of the youngest professors of corrosion in Italy. Together with his friend and colleague, Professor Pedefterri, Mazza contributed to the recognition and development of corrosion in university education.

This fascinating discipline, on the border between chemistry and engineering, was the ideal setting for Mazza the scientist, with his studies spanning from

the cathodic reduction of oxygen on gold electrodes to research on stress corrosion cracking and pitting of stainless steels, as well as corrosion of brass in chloride environment.

Having functioned as the Italian representative on the Science and Technology Advisory Committee of the European Federation of Corrosion (EFC) for many years, Mazza received one of the highest tokens of recognition from the EFC, the Cavallaro Medal, in 1995.



Professor Francesco Mazza (left) receiving the Cavallaro Medal from Prof. F. Zucchi

While Chairman of the Technical Committee of the Italian Association of Metallurgy, Mazza also played the delicate role of Chairman of the Organizing Committee of the two largest corrosion events in Italy: in the framework of the 'International Corrosion Council' (1990, Florence) and at EUROCORR 2001, Riva del Garda.

In 2010, Mazza received the Medal of Titanium, a prize established in 2002 and awarded to an AIM member with special merits in the field of metallic materials. The last recognition of his long career was received in September 2013, on the occasion of the 150th anniversary of the *Politecnico di Milano*, when a Conference was organised in memory of his friend Professor Pietro Pedefterri, who had died a few years earlier.

NEW EFC MEMBER SOCIETIES

We welcome two new members to the European Federation of Corrosion: **The Chinese Society for Corrosion and Protection (CSCP)** and **The Fachverband Kathodischer Korrosionsschutz e.V. (fkks)**.

THE CHINESE SOCIETY FOR CORROSION AND PROTECTION (CSCP)

The Chinese Society for Corrosion and Protection (CSCP) was founded in 1979 and is presently headed by secretary general Prof. Xiaogang Li. This not-for-profit organisation is dedicated to the advancement of corrosion protection in China and globally by the promotion of corrosion research and education. It is classified as a Tier-1 society under the administration of the China Association for Science and Technology (CAST). The CSCP is made up of over 20,000 individual members and 160 group members from academia and industry. An overseas branch of the CSCP is represented by worldwide corrosion experts and a corporate council is made up of group members from industries.

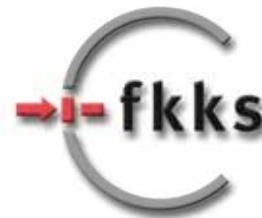
The CSCP is a member of the International Corrosion Council and has established long-term collaborations with corrosion societies from other nations, including NACE International. The 19 technical committees of the CSCP focus on the following topics relating to corrosion research: Aeronautic and aerospace, Power engineering, Water environment, High-temperature corrosion, Electrochemistry and testing methodology, Construction engineering, Corrosion inhibitors, Environmentally sensitive cracking,

Corrosion resistant metals, Soil corrosion, Chemical engineering and process, Non-metallic materials, Coatings and surface protection technology, Anticorrosion construction and technology, Hot dipped galvanizing, Pressure equipment, Plastic pipelines and containers, Vehicle corrosion and protection, and Petroleum and petrochemical corrosion and safety.

Conferences organised by the CSCP include the biennial National Corrosion Congress, the Annual Topical Conference (each technical committee is required to hold one conference each year), and the Annual CSCP Seminar (part of the NACE Corrosion Conference, jointly organised with NACE). A range of training courses and certifications are offered by the CSCP, as well as consulting services for industries. Publications of the CSCP include the journal *Materials Degradation* (in English), the *Journal of Chinese Society for Corrosion and Protection* (in Chinese), *Materials Protection* (in Chinese) and the popular Chinese science magazine *Corrosion and Protection Fan*.

THE FACHVERBAND KATHODISCHER KORROSIONSSCHUTZ E.V. (FKKS)

The Fachverband Kathodischer Korrosionsschutz e.V. (fkks) was established as an independent scientific and technical association in 1964. The President is Professor Dr.-Ing. Bernd Isecke.



The objective of fkks is the improvement of cathodic protection (CP), with particular regard to safety and the environment.

Fkks and its members are active in the field of CP and have the common goal of increasing the use and application of tested corrosion protection measures on buried and submerged metallic structures and offshore applications as well as internal cathodic protection of tanks, vessels or other water carrying equipment and CP of steel reinforcement in concrete. The major aims of the fkks are: the dissemination of the principles, application and advantages of CP to the public and private authorities; the enhancement of advertising and public awareness; collaboration on and contribution to the preparation of technical standards and rules in the field of cathodic protection of steel structures and in other applications; promoting member compliance with national and

international standards; qualification and certification of member companies; and to avoid any restriction of competition.

Particular responsibilities of fkks include: the promotion of science and technology; the enhancement of education and mentorship; the protection of nature and conservation of the environment in line with the appropriate environmental, public health and occupational health and safety legislation; the promotion of increased awareness of accident prevention; and the provision of improved consumer advice and protection.

Further information is available online at
<http://www.fkks.de/>

MEMBER SOCIETY AND AFFILIATE MEMBER NEWS AND PROFILES

SPANISH MATERIALS SOCIETY (SOCIEMAT)

Report: SPANISH NATIONAL CONGRESS ON MATERIALS 2016



The Spanish National Congress on Materials, the 14th in our CNM series, was held at Gijón University from 8 to 10 June 2016. The Spanish Materials Society (SOCIEMAT) entrusted the organization of the Conference to the capable hands of Professor Jaime Viña from the Department of Materials Science and Metallurgical Engineering, University of Oviedo. The Congress enjoyed the participation of around 400 people and more than 350 communications. Among the prominent personalities present, we had the pleasure of welcoming Professor Fatima Montemor, President of the European Federation of Corrosion, who gave a plenary lecture entitled "*Functional and Smart Coatings for Corrosion Protection*".



Professor Montemor delivering her talk to an appreciative audience

THE AUSTRALASIAN CORROSION ASSOCIATION (ACA)

News July 2016



In Brief:

- The NACE Cathodic Protection 4 Level Program has been announced and is scheduled for the second half of the year.
- The NACE Pipeline Corrosion Integrity Management Course has also been announced and scheduled for October 2016.

- The ACA (with support from NACE Malaysia) is conducting its Corrosion & Protection of Reinforced Concrete Structures & Buildings Course and Hot Dip Galvanizing Inspector Course in Kuala Lumpur later this year.
- The 2016 ACA technical events are now well underway.

While all this goes on, so does the planning for the annual conference.

Corrosion & Prevention 2016 requires a special mention as **registrations are now open**.



Industry experts and leading researchers from around the world will be meeting in Auckland, New Zealand, on 13-16 November for the Australasian Corrosion Association's **Corrosion & Prevention 2016 Conference (C&P2016)**.

This four-day gathering of world experts on corrosion mitigation will feature a program of keynote speakers and technical presentations and is expected to attract more than 400 delegates.

As always, C&P2016 will be a source for the latest information concerning corrosion prevention, control and repair, in addition to being a premium networking event.

Taking place in Auckland's Sky City Convention Centre, the conference will bring together leading researchers and industry practitioners who combat corrosion on a daily basis.

An extensive exhibition of key industry suppliers will also run in conjunction with the conference.



Auckland

Substantially reducing both direct and indirect corrosion costs requires more than just technology; it requires integrating corrosion management policies and procedures into the overall management system of an organisation. To this end, diverse technical streams will showcase the latest developments in the field, ranging from fundamental corrosion science to hands-on application.

C&P2016 will be of value to people working in a wide range of industries, including construction, oil & gas, mining, cultural and historical materials preservation, power generation, maritime, asset management, food processing and defence.

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



Hobbiton

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>

INAUGURATION OF “*YOUNG EFC*”

Nowadays, young researchers and engineers are challenged by the need for ingenious technical expertise combined with a strong scientific understanding of fundamental materials and corrosion problems. On top of that there is invariably time pressure. In the early stages of a successful career it is vitally important to have an experienced mentor or supervisor who has knowledge of how to obtain research funding (on both a national and international level), how to implement the right scientific methodology, and an understanding of how to develop personal and social skills. All of this is, of course, extremely challenging. Materials and corrosion science has become a multi-faceted, multi-disciplinary research field requiring young scientists and engineers to collaborate with senior experts to simplify the exchange of knowledge and experience in order to address current and future corrosion problems.

The ***Young EFC*** is an initiative created in 2016 by the European Federation of Corrosion (EFC) which aims to support young researchers and engineers in the field of corrosion and protection of materials.

Our vision has several cornerstones, namely:

- Building a bridge between young corrosion researchers and senior experts;
- Creating a network of young corrosionists;
- Organising and participating in conferences, workshops and other events;
- Promoting the interests of young researchers to the European Federation of Corrosion and the European Commission;
- Supporting the careers at early stage.



The ***Young EFC*** Board comprises the following members:

- Yaiza Gonzalez-Garcia,
Delft University of Technology, The Netherlands
- Marta Mohedano,
Complutense University of Madrid, Spain
- Michele Fedel,
University of Trento, Italy
- Cem Örnek,
University of Manchester, United Kingdom
- Christofer Leygraf,
KTH Royal Institute of Technology, Sweden

If you think that networking, communication, innovation and learning are key factors for a successful career, then do not hesitate to join us. No fees are required.

Send us an email with your information and we will keep you up-to-date with relevant events and platforms concerning corrosion engineering and science:

- Family name; First name
- University/Company; Department
- Street; Post/ZIP code
- City; Country
- Email

***Young EFC* contact:** YoungEFC@efcweb.org

Do not miss the opportunity to meet and discover the young generation of corrosion and protection!

This is the beginning of ***Young EFC*** and your time to contribute as a young or senior corrosionist.

Website: <http://efcweb.org/YoungEFC.html>

NEWS FROM THE EFC WORKING PARTIES

EFC WORKING PARTY 15: CORROSION IN THE REFINERY INDUSTRY

BRIEF: WP 15 SPRING MEETING, APRIL 2016

The annual spring meeting of Working Party 15, Corrosion in the Refinery Industry, took place on 26 April 2016 and was kindly hosted in Paris (France) by Total. The meeting was attended by 35 participants from Europe, the Middle East and the USA. Exchange of information and discussions took place on corrosion failures in specific refinery conditions, naphthenic acid corrosion management, sour gas treatment, corrosion under insulation, water cooling systems. Advanced monitoring techniques were also discussed in relation to their application in refinery plants.

On 27 April 2016 a joint round table, co-organised by the European Federation of Corrosion (EFC) and the Materials Technology Institute (MTI), on high temperature hydrogen attack of carbon (EFC Event No. 408) was held in ChimieParisTech and was attended by 52 persons. The latest advancements on understanding, prediction, and monitoring were discussed.

The next WP 15 meeting will be held during the EUROCORR 2016 Congress in Montpellier, France, on 13 September 2016 and will cover the "hot topics" affecting corrosion in the refinery industry.

For further information on the activities of the group, including all the minutes and presentations of the latest meetings, please visit our homepage at:

<http://efcweb.org/WP+Corrosion+in+the+Refinery+Industry.html>

EFC WP 15 Corrosion in the Refinery Industry would like to express its thanks to Total and to Francois Dupoirion for hosting the EFC spring meeting and to ChimieParisTech and Philippe Marcus for hosting the EFC-MTI round table event.



View of the WP15 spring meeting participants – Paris, 26 April 2016

E-MINDS: ELECTROCHEMICAL PROCESSING METHODOLOGIES AND CORROSION PROTECTION FOR DEVICE AND SYSTEMS MINIATURIZATION – A NETWORKING COST INITIATIVE

Cost-effective device miniaturization is one of the most significant challenges faced by process engineering and industry. As systems are further miniaturized, component machining and assembly become increasingly complex and manufacturing costs grow. Electrochemical processing and corrosion science are key disciplines for the integration and the protection of small functional parts in complex micro- and nano-systems. A transfer of knowledge among the electrochemical community, micro- and nano-systems researchers, and associated industry is timely.

With this aim, in June 2015, the COST Action e-MINDS “*Electrochemical processing methodologies and corrosion protection for device and systems miniaturization*” was launched. This Action focuses primarily on the development of novel electrochemical fabrication processes with a strong commitment to the requirements of European micro- and nano-systems industry. The innovative elements of the proposals include the identification of target materials for critical industrial applications on the micro- and nano-scales, addressing the need for materials with increased electrical performance, magnetic properties, high surface-area and enhanced corrosion and tribocorrosion resistance.

The Action is arranged in four working groups (WGs), which cover the most important aspects to develop and integrate materials by means of electrochemical processes in micro- and nano-devices, as outlined herein. **WG1**, Electrochemical Processing Methods, focuses on the development of new electrolytes and on the optimization of electrochemical parameters. **WG2**, Substrates, Electrodes and Templates, is aimed at finding solutions to enable the patterning of electrodeposits. **WG3**, Protection against Degradation of Components by Corrosion and Corrosion-wear, focuses on the study of corrosion mechanisms and on finding effective ways to protect materials on the micro- and nano-scales. The two main objectives of WG3 are: 1) Identification of the corrosion phenomena operating at small scales by scaling down the methodologies operative at the macro-scale and by development of new tools to assess the corrosion behaviour of miniaturized materials; 2) The design and implementation of protective coatings to slow down or preclude the progress of corrosion and wear. **WG4** will focus on Modelling, Upscaling and Integration.

The **e-MINDS Action** involves researchers from 22 COST countries and three non-COST countries. The WGs were formed during the Get-together Workshop in Cracow, Poland, 28-30 October 2015, involving over 40 participants from various countries.



Core Group members and substitutes at the Get-together Workshop (Cracow, 28-30 October 2015)

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In e-MINDS the education and participation of early-stage researchers is also enhanced. During the first year, five Short Term Scientific Missions have been approved, and ten are foreseen for the second year. Four training schools for Ph.D. students and early-stage researchers are programmed in the framework of the Action. The first training school was held in Brno University of Technology, Czech Republic, on 11-15 April 2016. This was attended by 60 Ph.D. students from various European countries, highlighting the interest of young scientists in the Action topics. Next year's training schools are programmed at Schwäbisch Gmünd (Germany), Cluj-Napoca (Romania), and Mons (Belgium).

We would like to encourage and invite everybody to join this exciting networking platform, which will continue for the next three years. More information about the e-MINDS action and related activities can be found at the following web pages:

<http://www.cost.eu/COST Actions>;

<http://www.cost.eu/COST Actions/mpns/Actions/MP1407>

Follow us on facebook at:

<https://www.facebook.com/emindsMP1407>

M. Lekka, University of Udine, Italy, Dissemination Coordinator

E. Garcia-Lecina, CIDETEC, Spain, WG3 Leader



Students attending the lectures at the first e-MINDS training school (Brno, 11-15 April 2016)

RECENT EFC SPONSORED EVENTS

16th HUNGAROKORR Conference

Törökbálint, Hungary, 15-17 September 2015

EFC Event No. 399

The 16th HUNGAROKORR Conference was held on 15th to 17th September 2015 in the small town of Törökbálint, a few kilometers southwest of Budapest. It was organised by the Hungarian Federation of Corrosion (HUNKOR) (Prof. Judit Telegdi, Prof. Tamás Török) in collaboration with the Chamber of Commerce and Industry of Pest County (PMKIK). Several other professional societies were also involved or expressed interest in communication, research and development activities related to the mitigation of corrosion and the application of protective coatings.

The objective importance of the conference, alongside the high intrinsic value of the content, resides in the re-appearance of this traditional meeting after twelve years of absence. The renewed management of HUNKOR resulted in a gathering of international experts, specialists and entrepreneurs from many different fields of corrosion science and corrosion protection to create an arena for discussion and exchange of experience and projects.

A group of international experts, specialists and entrepreneurs from many different fields of corrosion science and corrosion protection gathered for discussion and exchange of experience and projects covering communication, research and development activities related to the mitigation of corrosion and the application of protective coatings.

On the first day the Industrial Forum (in Hungarian) attracted about 60 participants, with approximately the same number attending the Scientific Conference on the second day. The introductory plenary lecture, "A few remarks about the Universe of protecting coatings", was presented by the undersigned with Dr. Agnieszka Królikowska as co-author. Two other invited speakers were Prof. Rajan Ambat of the Technical University of Denmark, who presented "Corrosion reliability issues of electronic devices: an overview",

and Prof. Gregor Mori of Montanuniversität Leoben, Austria, who presented "*Resistance of austenitic stainless steels against stress corrosion cracking*". The Session also included contributions from leading universities in Hungary where corrosion research groups or surface analytical experts are active and dealing with topics related to corrosion phenomena.



Delegates attending a lecture

About a dozen exhibitors were present in parallel with the first and second day conference events.

On the third day, a visit to the Hungarian oil and gas company MOL Group's Danube Refinery in Szazhalombatta (near the site of the HUNGAROKORR) was arranged for those interested in observing the real world of corrosion attack and corrosion protection in a major industrial setting. Three very interesting lectures were delivered by delegates from MOL Company, including "*Diversified crude sourcing – new corrosion challenges for MOL Refining*" by György Bohács, Antal Krójér and György Isaák. This lecture highlighted the difficult and often unpredictable corrosion problems arising from the refinement of the so called "opportunity oil", i.e. extremely polluted crude oils, desirable for economic reasons.

Participants were gifted an essay of Hungarian culture and treated to a performance of renaissance music. The official dinner in a castle included a delightful belly dance performance.

During the Conference, many interesting discussions arose concerning future events in corrosion science and in practical corrosion control. Some suggestions were made regarding a possible project of the Central Europe Corrosion Council dealing with the specific needs of such countries. An interesting example is given by the friendly and effective collaboration between Hungary and Slovakia, such that the present conference was held in the Hungarian-Slovakian

Business and Information Center. The Center was created specifically to support the efforts of companies to obtain credit for developments, to seek markets, obtain information and participate in training programs

More details on the Conference are available at:
http://www.corrosion.hu/hungarokorr2015/HUNKOR_3rd_E.pdf

Pier Luigi Bonora (edited)



Delegates at the 16th HUNGAROKORR Conference

EFC-Workshop “Insight, Mechanisms and Modelling in High Temperature Corrosion”

Frankfurt am Main, Germany, 28-30 October 2015

EFC Event No. 393

Every three years EFC Working Party 3, Corrosion by Hot Gases and Combustion Products, chaired by Michael Schütze, organises a topical workshop at DECHEMA in Frankfurt am Main focusing on the latest developments in high temperature corrosion research.

In 2015 the **EFC-Workshop “Insight, Mechanisms and Modelling in High Temperature Corrosion”** addressed all the aspects that need to be taken into account for reliable and precise prediction of material behaviour under high temperature corrosion conditions. This topic has attained significant interest, particularly in industry, as the technological potential provided by modern IT systems allows detailed theoretical treatment of complex corrosion processes, provided that the relevant models and data are available.

The workshop, chaired by Michael Schütze of DECHEMA-Forschungsinstitut and Joe Quadakkers of Research Center Jülich, provided a wide overview of the current state-of-the-art in this area and served also for defining the potential and the future perspectives of life-time modelling and prediction of materials behaviour under high temperature corrosion conditions.

The workshops of WP3 have a tradition spanning more than 15 years and are among the major EFC international events on high temperature corrosion research. Alongside participants from Europe, experts in this area from Asia, Australia and the USA took part in this event. During the three days, 31 oral papers and 42 posters were presented and actively discussed, both at the workshop and at the two dinner evenings. Selected papers will be published in a special issue of the journal *Materials and Corrosion* in the second half of 2016.

The next workshop is scheduled for 26-28 September 2018.



Dr. Peter Tortorelli, ORNL, USA, asks the first question in the discussion at the EFC-Workshop “Insight, Mechanisms and Modelling in High Temperature Corrosion”

18th All-Polish Corrosion Symposium (APCS) *"New Achievements in Corrosion Research and Engineering"* Jastrzab-Poraj, Poland, 18-20 November 2015 EFC Event No. 400

The 18th All-Polish Corrosion Symposium "New Achievements in Corrosion Research and Engineering" was held on 18-20th November 2015 at the Conference & Training Centre "Poraj" in Jastrzab-Poraj, near Czestochowa, Poland. The event was organised by Czestochowa scientific community, under the auspices of the Polish Corrosion Society (PSK). The symposium was attended by 60 participants, from both academic/scientific institutions and from industry. The official languages were Polish and English (without simultaneous translation).

During the symposium, 45 original contributions, consisting of 21 oral presentations and 24 posters, were presented. The Symposium Proceedings, in the form of a special issue of the Polish Corrosion Protection Monthly *Ochrona przed Korozją* (OpK) vol.58, Nr 11s/A, 2015, was available for participants on registration. This contained 41 short communications - 26 in English and 15 in Polish.



Delegates attending the Symposium

Two plenary lectures were presented. Professor Paweł Nowak, Institute of Catalysis and Surface Chemistry PAS, Cracow, presented "Corrosion of magnesium and its alloys - new observations and ideas" (presented in English).

Professor Maria Sozanska, Silesian University of Technology, Gliwice, presented "Structure, chemical and phase composition of corrosion products on the material surface - contemporary research possibilities" (presented in Polish, with slides commented upon in English).

Two supporting firms, DAAS Group, Bielsko-Biala, Poland and SHIM-POL A.M. Borzymowski, Izabelin, Poland, presented their business profiles during the Promotion and Commercial Session. The general oral sessions were convened on the 19th and 20th of November, while the poster session took place on the 18th and 19th of November 2015.

The full texts of symposium presentations may be published in forthcoming regular issues of OpK, after manuscript evaluation by the referees, according to the standard editorial route (each paper reviewed by two referees).

Two evening social events were traditionally included in the symposium social programme – the Welcome Reception on the 18th, and a Beer Party on the 19th of November. A Round Table Discussion on the 20th November summarized the debates and highlighted new suggestions and proposals addressed to the Organizing Committee. Two major forthcoming corrosion events were announced during the Round Table meeting: the 12th Corrosion Conference (Warsaw) and EUROCORR 2018 (Cracow). The All-Polish corrosion event, the 25th "Anticorrosion" Conference, to be held in Ustron-Jaszowiec, April 2016, was also announced.

The participants emphasized the high scientific level of the Symposium and the exemplary organisation of the event.

Further information, along with a detailed programme of the APCS Symposium Poraj-2015, is available at: <http://www.symp-kor-apcs.wip.pcz.pl>.

Prof. Henryk Bala
APCS Chairman

22nd International Conference of Materials Protection and Industrial Finish "KORMAT 2016"

Zagreb, Croatia, 20 April 2016
EFC Event No. 409

The 22nd International Conference of Materials Protection and Industrial Finish "KORMAT 2016" was organised by the Croatian Society for Materials Protection and held at the Zagreb Fair as part of the 26th International Fair of Welding and Corrosion Protection. This event was a continuation of long-term activities of the Croatian Society for Materials Protection in corrosion and corrosion protection study, training, development, promotion and professional knowledge transfer at home and abroad.

The conference was dedicated to the work and memory of professor Ivan Esih, one of the founders of the Croatian Society for Materials Protection, long-time president and promoter of the corrosion engineering profession in Croatia and abroad, and was therefore subtitled "*In memoriam prof. Ivan Esih*".

The conference consisted of 19 scientific lectures from Croatia, Slovenia and Germany, including invited speakers: J.W. Erning of the Federal Institute for Materials Research and Testing (BAM) in Berlin, Germany; T. Kosec of the Slovenian National Building and Civil Engineering Institute; and B. Runje of the Faculty of Mechanical Engineering and Naval Architecture in Croatia.



Audience during a lecture at KORMAT 2016

Conference papers were peer reviewed and published in the Proceedings.

The objective of the conference was to present the latest achievements in the field of corrosion, application of stainless steel, corrosion in concrete, coatings protection, environmentally friendly corrosion inhibitors, cathodic protection, and metrology and quality assurance. A book entitled "*Corrosion and Protection of Process Plants*", authored by N. Despot and D. Rajhenbah and published by the Croatian Society for Materials Protection, Zagreb, 2016, was presented as part of the conference programme.

The conference has again proved to be a platform to connect scientists and experts from the industry, to promote the profession and to establish cooperation with domestic and foreign corrosion institutions. It was attended by 70 participants. The Conference was supported by Zagreb Fair, Ivezkovic TZM, PA-EL, Inhibitor Sisak, IDEF, EcoCortec and Helios.



J.W. Erning during his presentation

Ivan Stojanović
Croatian Society for Materials Protection

"MODERN CORROSION PROTECTION TECHNOLOGIES"
10th Annual Scientific and Technical Conference of the Polish Corrosion Society
Ryn, Poland, 11-13 May 2016
EFC Event No. 414

The 10th Scientific and Technical Conference of the Polish Corrosion Society (PSK), entitled "*Modern corrosion protection technologies*", took place on 11-13 May 2016 at the historic Castle in Ryn. This was the 414th event of the European Federation of Corrosion (EFC). The slogan of this year's conference was "*Corrosion protection - modernity and the future*".

This year's conference brought together a record 180 participants with 36 papers being presented in six thematic sessions, including three plenary sessions.

The conference was sponsored by: Anticorr Agency, Corrpol, International Protective Coatings, Jotun, PPG, Sika, Teknos, Tikkurila and the Ministry of Science and Higher Education.

The conference was organised under the honorary patronage of: The Road and Bridge Research Institute, the Polish Chamber of Steel Structures, and the Polish Zinc Society. Media patronage was provided by the journals *Ochrona przed Korozją*, *Mosty, Lakiernictwo Przemysłowe*, *Nowoczesne Hale, Stal, Stalowe Forum*, *Nowa Stal* and *rynekfarb.pl*.



The participants of the 10th Annual Scientific and Technical Conference of the Polish Corrosion Society

This jubilee conference opened with an awards and decorations ceremony.

The twelfth Grand Corrosionist Medal this year went to Urszula Szczyrek.



Urszula Szczyrek receiving her award



The prize for the best presentation/film scenario on corrosion and its effects, prepared for students aged 9 – 12 years, was presented to Agnieszka Dobek-Halman, Anna Bialecka and Agnieszka Zapadka.



The presentation of the educational film scenario award

The Polish Corrosion Society presents an award each year for the best product/technology/event in the field of corrosion protection. This year the award went to the Laboratory of Technological Processes of the Faculty of Chemistry at the Warsaw University of Technology for their product IKOROL.

This is an inhibitor that improves the adhesion of the successive layers of an anticorrosion system to inadequately prepared steel, galvanized and coated surfaces.



The presentation of the Event of the Year award

The plenary session began with a paper entitled "People I met", in which professor Pier Luigi Bonora honoured a number of outstanding figures from the world of corrosion and corrosion protection. Professor Agnieszka Królikowska then spoke on the importance of clearly established procedures, schedules and reliability checks on all members taking part in a project in order to achieve long-term, effective corrosion protection.



Prof. Bonora during his presentation

Maciej Wiśniewski highlighted several of the many investment projects realized with the utilisation of Sika Co. products. Finally, the first day closed with a presentation by Wilckens on the application of a paint that changes colour as the coating thickness increases.



Managing Director of Sika Poland, Mr. Maciej Wiśniewski, receiving a letter of recognition from Prof. Królikowska, the President of the Polish Corrosion Society

The thematic papers were read in two parallel sessions and selected papers will be published in the *Corrosion Protection* journal. In the Protective Coatings session, a paper authored by M. Zubielewicz, A. Ślusarczyk, G. Kamińska-Bach, A. Królikowska, L. Komorowski discussed the protective properties of coating systems in natural and laboratory corrosion conditions, Marcel de Haan of PPG spoke on issues relating to the significance of determining leakage resistance as a criterion for the approval of a coating for use on the internal surfaces of fuel tanks, Jacek Bordziłowski highlighted some interesting cases of premature chalking of aliphatic polyurethane topcoats, caused by the presence of chemical contamination from plantations. The session also included papers on issues relating to the selection of electrochemical conditions for corrosion measurements and interpretation of results (A. Królikowski), developing trends in thermal spraying (P. Milewski), properties of the Fluorex Finish fluoropolymer coating (M. Hop), the capabilities of polyurethane products cured with air humidity (V. Pascaleenko), and modern ecological powder coating

solutions and corrosion protection systems that meet the Green Buildings requirements (K. Skubiszewska). In the Corrosion and Protection of Reinforced Concrete session, the following issues were discussed: application of waterproof concrete to ensure the durability of concrete structures (W. Świerczyński, B. Gądecki), the influence of polymeric admixtures on the contraction of cement-based composites (M. Gruszczyński, M. Lenart, U. Paszek), a new non-destructive diagnostic method for assessing corrosion processes in reinforced concrete structures based on simultaneous analysis of the results of three electrochemical techniques (R. Filipiak et. al.), resin concretes used in construction (R. Kasak), and the results of comparative tests of the adhesion of steel and galvanized steel rods to concrete (A. Rusin).

In the Problems Encountered by Site Inspectors session, M. Jaczewski discussed the importance of corrosion protection evaluations carried out by independent laboratories, and Jerzy Kozłowski spoke on the requirements for competency and training of staff supervising and conducting corrosion protection works in the context of the KorrAll project.

In the Surface Preparation session, Lech Kwiatkowski presented a brief overview of the changes in conversion coating technologies since their introduction into industrial practice. Innovations in stream-abrasive surface treatment methods were the subject of four papers, while modern chemical surface preparation technologies were discussed in a paper delivered by Marek Budziszewski, in which the author presented the increasingly popular zirconium, titanium and silane-based nanotechnologies.

The next session included topics related to transportation, storage and processing of crude oil. E. Kordalewska spoke on corrosion protection of freight wagons in the light of EU and VPI regulations, J. Szczuka discussed materials and technology for the surface protection of internal liquid fuel tanks, R. Wypych described the growing requirements concerning offshore structure protection from the point of view of the contractor, K. Szymański's paper explained the use of modern thermal spraying methods, and W. Zych described modern methods of fire-protection for hydrocarbon fires employing epoxy intumescent paints.

In the final session, Infrastructure and Environment, papers dealing with the following issues were presented: corrosion protection of underground municipal and industrial infrastructure (W. Sokólski), corrosion protection of steel hydrotechnical structures in seaports (A. Szypiółow, A. Dobrzykowski), standards and requirements on the corrosion protection and fire protection of drilling and mining platforms (A. Niedziółka, K. Trocewicz), causes of noise barrier corrosion (A. Królikowska, L. Komorowski, J. Noworyta), problems with the application of metallic paint in industrial conditions (P. Lula), and renovation of the Łazienkowski bridge using a high zinc content ethyl silicate primer (R. Chrzanowski, A. Kulesza, R. Jędrasiak).

During the conference, as every year, prizes funded by the PSK were awarded for the best engineering, master's and doctoral dissertations. This year, five master's theses were submitted to our society, two of which were awarded prizes.

The first went to Agata Sotnickzuk for her thesis entitled "*The effect of heat treatment on selected properties of nanocrystalline titanium*", written under the supervision of Prof. Halina Garbacz, at the Faculty of Material Engineering of the Warsaw University of Technology.



The presentation of Ms. Agata Sotnickzuk

A distinction was awarded to Mariusz Abram for his thesis entitled "*Modification of polyurethane powder coatings for the improvement of their application properties*", written under the supervision of Prof. Barbara Pilch-Pitera, at the Department of Polymers and Biopolymers of the Faculty of Chemistry at the Technical University of Rzeszów.



Mr. Mariusz Abram receiving distinction

During the conference, a general assembly of the PSK and a session of the Round Table took place. The board informed the members of the Association of the signing of an agreement on the cooperation with the FATIPEC association, and of a proposal for the cooperation with the Polish Association of Paint and Adhesives Manufacturers. Members of the PCS voiced positive opinions on the cooperation with the association, and believe that it may contribute to a better representation of the interests of the corrosion protection industry. In addition, preparations for the organisation of the EUROCORR 2018 congress and the topics to be covered at the paper session at the next conference were discussed.

In the evenings the conference participants could wind down on the beautiful indoor courtyard of the castle to some ethno jazz music played by the Warsaw Kyiv Express on the first day and to the music of Conrado Yanez on the second. Mr. Yanez has been a guest at our conference for the last several years.

Małgorzata Zubielewicz
PSK press spokesman

CONFERENCE ON FLOW ASSISTED CORROSION – FAC 2016

LILLE, FRANCE, 24 -27 MAY 2016

EFC Event No. 406



The phenomenon of Flow Accelerated Corrosion (FAC) appears in numerous industrial installations, including fossil fuel or nuclear power plants. Although FAC mechanisms have been studied in depth over the last 40 years, FAC remains a major issue for personal safety and plant availability of the installations because of the pressure risk on carbon steel components. In the context of the management of ageing nuclear power plants (NPPs), power upgrades and lifetime extension strategy, the sharing of knowledge and operational experiences of FAC is the paramount objective of this series of international conference series on FAC.

Three previous conferences were held in France - in 2008, 2010 and 2013. The latest one, **FAC 2016**, was held in Lille from 24th to 27th May. More than 170 attendees from 25 countries attended this event. For the first time, the conference also dealt with FAC in fossil fuel plants. Furthermore, erosion by cavitations and by droplet impingement was also at the heart of the concerns.

Forty presentations were received from industrial or academic research centers, on topics such as the study of the mechanisms and parameters of degradation, tools for modelling and calculation designed for the use of engineering departments

but also for operators of power plants, and the latest devices and procedures for non-destructive examination. A large exhibition center with a booth of industrial leaders of the sector illustrated these topics. Outside the conference, several cultural and social activities were organised during these four days, including a lunch in a typical *estaminet* (tavern), a visit to downtown Lille including the "Grande Place", the city hall and its belfry, the "Vieille Bourse" (Old Stock Exchange), two guided tours to the Musée du Louvre from Lens (the Gallery of Time and the exposure of the famous painter Charles Le Brun). The gala dinner took place in the hall of the Musée du Louvre with the facade completely transparent giving a view of 20 hectares of landscaped gardens surrounding the Museum.

FAC2016 was organised by EDF-DTG in cooperation with the International Atomic Energy Agency (IAEA) and with the World Association of Nuclear Operators (WANO). A scientific committee, made up of experts from EDF and CEA, selected the best topics and managed the conference schedule by combining scientific rigor with effective communication.

FAC 2016 was supported by the Working Party on Nuclear Corrosion (EFC WP4).

Stephane Trevin (EDF)



The delegates at the FAC 2016 conference in front of the Lille Opera

XIV National Conference CORROSION MEASUREMENTS IN ELECTROCHEMICAL PROTECTION GNIEW, POLAND, 15-17 JUNE 2016 EFC Event No. 415

On 15-17 June 2016 experts in cathodic protection technology in Poland met for the **XIV National Conference "Corrosion Measurements in Electrochemical Protection"**, organised by the Polish Electrochemical Anticorrosion Protection Committee. This year it was held at Hotel Zamek in Gniew. The conference covered aspects connected with corrosion protection of steel in underground and underwater structures (pipelines, tanks, hydrotechnical structures, reinforced concrete objects and others).

Due to cooperation and patronage of the Polish Corrosion Society, this year's conference was allocated the 415th Event of the European Federation of Corrosion. The conference was sponsored by the Ministry of Science and Higher Education.

In total 109 persons took part in the conference, including active delegates from Lithuania, the Czech Republic and Serbia. 17 lectures were prepared and delivered, while six companies presented their products in an exhibition.

The subject matter of the presented lectures concerned mainly the various aspects of corrosion protection of pipelines with the use of cathodic protection technology. The problem of alternate current interaction with underground metal structures was discussed with respect to the applied measurement techniques and to corrosion protection. Some lectures concerned technical solutions to pipeline cathodic protection applied in industry, e.g. for gas pipelines in a gas compressor station area, or the interior of a water pipeline in a steel mill.

Several lecturers presented problems encountered while performing measurements in the field, such as the assessment of transfer resistance of pipeline coatings, the interaction of stray currents on reinforced concrete structures, or the appropriate use of measurements on corrosion coupons. Joint measurement techniques were described which enable the assessment of the technical state of pipelines without the need for their uncovering. There

were also presentations concerned with passive protection by cathodic loosening of protective coatings and filling of the insulating space with mass between the line pipe and the protective pipe.

One of the lecturers discussed steel corrosion aspects in insulation defects in the case of limited access to oxygen in the example of the space between a steel line and the protective pipelines.

A discussion was held after the lectures and a summary of this part of the conference has been published on the Committee website. Full texts of the lectures are also available online at:

<http://www.pkeopk.sep.com.pl>.

At the end of the conference the chairman of PKEOpK SEP, Wojciech Sokólski, thanked all the lecturers for presenting and the remaining participants for taking part. In his summary he emphasised with satisfaction that he is observing an increase in activity of the circle dealing with anti-corrosion protection.

This official part of the conference was followed by a visit to the Gniew Castle, which was rebuilt after a fire which destroyed it in 1921. Conference participants were ceremonially welcomed at the courtyard before the castle by the governor of the castle Mr. Jarosław Struczyński - on horseback, assisted by a suite in historical dress. The commencement of an unforgettable supper, with the participation of the castle governor, was announced by a shot from a medieval cannon.

On the second day of the conference, participants visited the Castle of Teutonic Order in Malbork, the origin of which is dated at 1280. In 1997 it was added to the UNESCO list of World Heritage.

The day was concluded with a grill dinner in the open air in white and red colours before a huge screen displaying the match of Poland v Germany at Euro 2016.

Hanna Matus Msc.
Secretary of PKEOpK SEP

PREVIEW: EUROCORR 2018 & 2019



NEWS ABOUT EUROCORR 2018 Cracow, Poland, 9-13 September 2018

EFC Member Society PSK, the Polish Corrosion Society, will be hosting EUROCORR 2018 on 9-13 September in the beautiful city of Cracow.

We warmly invite you to one of Poland's oldest cities and, in past times, the capital - a place full of history and academic achievement. Cracow has a reputation as the number one tourist location in the region as the city is an ideal location for both leisure and work. The Polish academic society is looking forward to participation in Europe's most renowned event in the science of corrosion.

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>



Rynek Główny (Main Market Square)

NEWS ABOUT EUROCORR 2019

Seville, Spain, 9-13 September 2019

The Spanish Materials Society (SOCIEMAT) is proud to have received from the European Federation of Corrosion (EFC) the task of organising **EUROCORR 2019**, which is to be held in **Seville, Spain, from the 9th to the 13th September 2019**. This will be 26 years since Prof. Costa, organised a EUROCORR at the University of Barcelona. Three years of hard work remain ahead of us, which we are sure will culminate in a successful and memorable conference.

Theme and venue

From the beginning of the Neolithic, when metals were first incorporated into the human way of life, these elements have been essential tools promoting economic and social development. For more than ten thousand years of human experience, the metals have answered to new challenges arising from the needs of society. Throughout this long history, corrosion has remained the Achilles' heel in most of their applications. Corrosion science is nevertheless a dynamic pursuit, capable of dealing with the problems derived from the applications of advanced technology. The efforts of corrosion scientists are focused on understanding the processes taking place in each new material and medium as we strive towards improved corrosion protection. For this reason the motto "**New times, new materials, new corrosion challenges**" has been chosen as the header for EUROCORR 2019.

The venue is **Seville**. Few other Spanish cities can boast of such a cultural and artistic heritage, interesting monuments and charming places as Seville, the Andalusian city crossed by the river Guadalquivir. Famous for its unique atmosphere and the hospitality of its inhabitants, Seville represents the spirit of Andalusian culture. Seville is a city open to the past, living in the present and prepared for the future, a place of meeting, tolerance and sharing. All of these make Seville an attractive first class destination.



Seville Cathedral (Santa María de la Sede)



Plaza de España Seville

We are looking forward to meeting with the corrosion science community during September 9th-13th in Seville.

Contact:

Spanish Materials Society (SOCIEMAT)
Urb. Los Arroyos c/25 nº 78
28292 El Escorial, Madrid, Spain
E-mail: sociemat1996@gmail.com
Website: <http://www.sociemat.es>



EFC WORKING PARTY INDEX

The EFC currently has twenty active Working Parties (WPs) and two Task Forces, listed below, each concerned with a different aspect of the corrosion of metals, alloys and polymer materials. Activities of the EFC Working Parties/Task Forces 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 Chairs. 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

Interim Chair: Prof. Daniela ZANDER, Gießerei-Institut, RWTH Aachen, Aachen, Germany;
E-mail: D.Zander@gi.rwth-aachen.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., Milano, Italy;
E-mail: pierangela.cristiani@rse-web.it

EFC WORKING PARTY 11: CORROSION OF STEEL IN CONCRETE

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

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EFC WORKING PARTY 13: CORROSION IN OIL AND GAS PRODUCTION

Chair: Mr. Steve PATERSON, Shell Projects & Technology, Amsterdam, The Netherlands;
E-mail: steve.paterson@shell.com

EFC WORKING PARTY 14: COATINGS

Chair: PD Dr.-Ing. Wolfram FÜRBETH, 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: Ms. Elizabeth SZALA, R & D - Innovation Centre Duffel, ALERIS ALUMINUM DUFFEL BVBA, Duffel, Belgium; *E-mail:* elizabeth.szala@aleris.com

EFC WORKING PARTY 18: TRIBOCORROSION

Chair: Dr. Stefano MISCHLER, École Polytechnique Fédérale de Lausanne (EPFL), Tribology and Interface Chemistry Group, Lausanne, Switzerland; *E-mail:* stefano.mischler@epfl.ch

EFC WORKING PARTY 19: CORROSION OF POLYMER MATERIALS

Chair: Dr.-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), Materials and Surface Engineering, Lyngby, Denmark; *E-mail:* ram@mek.dtu.dk

EFC CALENDAR OF FORTHCOMING EVENTS AND COURSES (AS OF AUGUST 2016)



DATE/VENUE	CONFERENCE / COURSE	CONTACT
2016		
19-22 September 2016 Expocentre, Moscow, Russia	CORRUS 2016 <i>International exhibition and conference on technologies, equipment and materials for corrosion protection</i> <i>Part of the exhibition KHIMIA 2016</i>	DECHEMA e.V. Dr. Rick Durham Frankfurt am Main, Germany E-mail: durham@dechema.de Website: http://www.corrus.ru
22-24 September 2016 Galati, Romania	ROTRIB'16	Registration Manager: Prof. Minodora Ripa E-mail: rotrib2016@ugal.ro Website: http://www.rotrib16.ugal.ro/index.php/rotrib/rotrib2016
27-29 September 2016 Darmstadt, Germany	Materials Science Engineering (MSE) <i>International Congress and Exhibition</i>	Congress Office: INVENTUM GmbH Bonn, Germany E-mail: mse@mse-congress.de Website: http://www.mse-congress.de
28-30 September 2016 Portorož, Slovenia	ICM&T 24 <i>24th International Conference on Materials and Technology</i>	Vesna Nahtigal Institute of Metals and Technology Ljubljana, Slovenia E-mail: icmt23@imt.si Website: http://icmt24.com/en/
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 Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/upcoming-meetings
05-07 October 2016 Bayburt, Turkey	XIV. International Corrosion Symposium EFC Event No. 411	Prof. Dr. Mehmet Gavgali Bayburt University 69000 Bayburt, Turkey E-mail: gavgalim@gmail.com Website: http://www.korozyondernegi.org.tr/
25-27 October 2016 London, United Kingdom	Element Oilfield Engineering with Polymers Conference EFC Event No. 405	CaLae McDermott NACE International Headquarters Houston, Texas 77084, USA E-mail: calea.mcdermott@nace.org Website: http://oilfieldpolymers.nace.org/

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DATE/VENUE	CONFERENCE / COURSE	CONTACT
13-18 November 2016 Auckland, New Zealand	Corrosion & Prevention 2016	Australasian Corrosion Association, Inc. Mr. Wesley Fawaz E-mail: wesley.fawaz@corrosion.com.au Website: http://www.acaconference.com.au/conference_2016
2017		
19-22 March 2017 Buenos Aires, Argentina	20th ISE Topical Meeting	International Society of Electrochemistry Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org/annmeet/next_meetings.php
26-30 March 2017 New Orleans, LA, USA	CORROSION 2017 / NACE Conference and Exhibition	CaLae McDermott NACE International Headquarters Houston, Texas 77084, 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 Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/upcoming-meetings/
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/
20-24 June 2017 Verona, Italy	Aluminium 2017 <i>10th Aluminium Two Thousand World Congress; together with ICEB 2017</i>	Interall Srl, USA E-mail: aluminium2000@interall.it Website: http://www.aluminium2000.com/
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 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 & 20th International Corrosion Congress <i>“Corrosion Control for Safer Living”</i> EFC Event No. 417	Local Organising Secretariat: GUARANT International Prague, Czech Republic E-mail: eurocorr2017@guarant.cz Website: http://www.eurocorr2017.org/
		Scientific Secretariat: DECHEMA e.V. E-mail: eurocorr@dechema.de Website: http://eurocorr.org/
01-06 October 2017 National Harbor, MD (greater Washington, DC area), USA	232nd ECS Meeting <i>Fall Meeting 2017 of the Electrochemical Society</i>	The Electrochemical Society Pennington, New Jersey 08534-2839, USA E-mail: meetings@electrochem.org Website: http://www.electrochem.org/upcoming-meetings/



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DATE/VENUE	CONFERENCE / COURSE	CONTACT
2018		
15-19 April 2018 Phoenix, AZ, USA	CORROSION 2018 / NACE <i>Conference and Exhibition</i>	CaLae McDermott NACE International Headquarters Houston, Texas 77084, USA E-mail: calae.mcdermott@nace.org Website: http://www.nace.org/
11-15 June 2018 Frankfurt am Main, Germany	ACHEMA 2018	DECHEMA Ausstellungs GmbH Frankfurt am Main, Germany Website: http://www.achema.de/
22-27 July 2018 Cambridge, United Kingdom	EMCR 2018 <i>Triennial conference on Electrochemical Methods in Corrosion Research</i>	Prof. Bob Cottis c/o School of Materials, University of Manchester Manchester, M13 9PL, UK E-mail: bob.cottis@manchester.ac.uk
	EFC Event No. 418	
07-09 September 2018 Bologna, Italy	ISE Annual Meeting 2018 <i>69th Annual Meeting of the International Society of Electrochemistry</i>	International Society of Electrochemistry Lausanne, Switzerland E-mail: events@ise-online.org Website: http://www.ise-online.org/annmeet/next_meetings.php
09-13 September 2018 Cracow, Poland	EUROCORR 2018 EFC Event	Local Organiser: Polish Corrosion Society (PSK) Gdansk, Poland Website: http://www.psk.org.pl Scientific Secretariat: DECHEMA e.V. E-mail: eurocorr@dechema.de Website: http://eurocorr.org/
2018		
24-28 March 2019 Nashville, TN, USA	CORROSION 2019 / NACE <i>Conference and Exhibition</i>	CaLae McDermott NACE International Headquarters Houston, Texas 77084, USA E-mail: calae.mcdermott@nace.org Website: http://www.nace.org/
09-13 September 2019 Seville, Spain	EUROCORR 2019 EFC Event	Local Organiser: SOCIEMAT El Escorial, Madrid, Spain E-mail: sociemat1996@gmail.com Website: http://www.sociemat.es Scientific Secretariat: DECHEMA e.V. E-mail: eurocorr@dechema.de Website: http://eurocorr.org/

EFC MEMBERSHIP BENEFITS

EFC MEMBER SOCIETIES (EUROPEAN AND INTERNATIONAL)	AFFILIATE MEMBERS
<p><u>Working Parties Activities:</u></p> <ul style="list-style-type: none"> 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. <p>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.</p> <ul style="list-style-type: none"> Possibility to install on the restricted areas of members' own websites a link to permit direct downloading of past EUROCORR proceedings. 	<p><u>Working Parties Activities:</u></p> <ul style="list-style-type: none"> 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. <p>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.</p> <ul style="list-style-type: none"> Possibility to install on the restricted areas of their own websites a link to permit Affiliate Members' employees downloading of past EUROCORR proceedings.
<p><u>Congress and Exhibition advantages:</u></p> <ul style="list-style-type: none"> 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. 	<p><u>Congress and Exhibition advantages:</u></p> <ul style="list-style-type: none"> Organisation of seminars and courses with the EFC endorsement and logo. Reduced registration fee of the Affiliate's employees at annual EUROCORR conferences. Discount on exhibitor booths at annual EUROCORR conferences.
<p><u>Publications:</u></p> <ul style="list-style-type: none"> 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. 	<p><u>Publications:</u></p> <ul style="list-style-type: none"> 30% discount on purchase of our 60+ EFC publications. 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)	AFFILIATE MEMBERS
<p><u>EFC Administration:</u></p> <ul style="list-style-type: none"> 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 General 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. <p><u>Advertising:</u></p> <ul style="list-style-type: none"> 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. 	<p><u>EFC Administration:</u></p> <ul style="list-style-type: none"> Participation in the EFC General Assembly without voting rights Access to your organisation's own website directly from the EFC Website. <p><u>Advertising:</u></p> <ul style="list-style-type: none"> Listing, advertising and promotion of any of the Affiliate Member's corrosion-related events 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 the Affiliate Member'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.

CONTACT DETAILS FOR THE EFC OFFICES

Willi Meier
Europäische Föderation Korrosion
DECHEMA e.V.
Theodor-Heuss-Allee 25
60486, Frankfurt am Main
Germany
EFC Secretary: Ms. Ines Honndorf
Tel: +49 69 7564 209
Fax: +49 69 7564 418
E-mail: honndorf@dechema.de

Marcel Roche
Fédération Européenne de la Corrosion
CEFRACOR
28 rue Saint-Dominique
75007 Paris
France
EFC Secretary: Ms. Pascale Bridou Buffet
Tel: +33 1 40 62 27 76
Fax: +33 1 45 55 40 33
E-mail: p.bridou-buffet@maisondelachimie.com

Bernard A. Rickinson
European Federation of Corrosion
The Institute of Materials, Minerals and Mining
297 Euston Road
London NW1 3AQ
United Kingdom
EFC Honorary Treasurer: Ms. Julija Bugajeva
Tel: +44 20 7451 7332
Fax: +44 20 7387 0766
E-mail: julija.bugajeva@iom3.org

EFC Newsletter Editor: Douglas Mills ; Assistant Editor: Ruth Bingham
Compositor: Ines Honndorf, EFC Frankfurt office

Please address all general enquiries to: info@efcweb.org