

Issue April 2020

<https://www.efcweb.org>

Dear Readers,

Welcome to the EFC newsletter. These are difficult times but, taking a lead from the encouraging President's letter later in this issue, the EFC community will do all it can to engender a positive group spirit among our different member societies and global corrosion associations. One way of doing this is by disseminating knowledge and encouraging group discussion. To facilitate this, WEBINARS on various subjects are being planned. The first on the topic **Corrosion and Low Carbon Energies** will take place THIS COMING FRIDAY between 2 and 4 pm (CET) on 24<sup>th</sup> April (Corrosion Awareness Day). It is being run by the WCO (see below for more details). Further webinars are coming up organised by the EFC, with the first one on coatings scheduled for May 20<sup>th</sup>. The format of these webinars will be that a group of experts deliver short talks and then take questions.

Until the lockdown, EFC member societies had of course been active and reports on several meetings are included in this report.

Regarding EUROCORR 2020, a final decision on this event has not yet been taken, so there are no details in this newsletter about it. We hope to publish another short newsletter when matters become clearer.

On a positive note, at least here in UK we have been blessed with exceptionally good Spring weather; almost as compensation for the hard times we all live in. But the good times will come again, never fear!

*Douglas Mills*

EFC Newsletter Editor

*Ruth Bingham*

Assistant Editor

## IN THIS ISSUE:

- A few words from the EFC President
- Corrosion Awareness Day 2020
- Webinars in Corrosion Science and Engineering
- Who's Who
- Affiliate Members' News and studies
- EFC Event Reports
- Future EUROCORRs
- Forthcoming EFC Events
- Contacts

# A FEW WORDS FROM THE EFC PRESIDENT

*To all the members of the European Federation of Corrosion*

Dear colleagues, dear friends,

I hope you are all in good health and in a positive state of mind. These are uncommon words to start off these few words of welcome from the EFC President. In the past, the words of welcome would more-or-less focus only on the positive achievements that the EFC in particular, and the corrosion community in general, have made towards a bright future.

However, in this period of COVID-19 restrictions and measures it is virtually impossible to avoid touching on the subject of this pandemic and act as if these are normal times. The pandemic has affected our personal and professional lives to a greater or lesser extent, which cannot and should not be ignored. We have seen, are still experiencing, and will continue to feel the consequences in the future.

Please note that in these difficult times, words are powerful tools. When family, a friend, or colleague is discouraged or having a difficult time, the right words can brighten their outlook and lift their spirits. Other times, there may be a co-worker who does great work and deserves an encouraging note, and the right words from you will make all the difference. Family, friends, researchers, teachers, students and co-workers are just a few of the people in your life who might appreciate some encouragement. Please drop a little note, or give a call also to your colleagues further away, across borders. These are the times that we as a corrosion community need to reach out, stand strong, be collegial, persistent and supportive: we are all in this together.

We, as the EFC community will strive to maintain the positive group spirit, continue to plan our activities for knowledge dissemination, bridge science and technology across academia and industry, and establish an important network between our different member societies and collegial global corrosion associations. Some of these activities may need a change of format and re-organisation on the short term, but we also feel that the opportunities that digital communication technologies offer us these days will continue to provide new prospects where physical meetings and travelling may be difficult. So, while social distancing may remain important for a while to come, it will also come with other interactions through different means of technology, such as virtual webinars, fora and discussion platforms, possibly persisting and helpful also in the future.



As you will see in this EFC Newsletter, we can look back on various successful EFC endorsed gatherings and activities in various member countries such as Spain, Poland and Croatia. Also, we look ahead to a wide variety of (Young) EFC promoted activities, e.g. those by the World Corrosion Organisation WCO on April 24, the yearly Corrosion Awareness Day. Various countries across the globe have initiated different events including, but not limited to, photo contests, informative technical webinars and video presentations for professionals and the general public.

I also would like to welcome the newly elected Board of Administrator (BoA) and Science and Technology Advisory Committee (STAC) Members to EFC: I am looking forward to a constructive and fruitful collaboration for the remainder of this year and beyond! Also I sincerely thank the retiring EFC representatives from BoA and STAC: I highly appreciate your voluntary time and efforts to continue to develop EFC, which has now become one of the largest, professional, scientific and technological leading corrosion organisations in the world.

Furthermore, I am very proud and pleased that the Young EFC community is still growing fast, providing an active and interactive platform for networking across national borders among the young community of corrosionists within the EFC and connecting junior and senior scientists and engineers by an active mentoring program. Do not miss the opportunity to meet and discover the young generation of corrosion and protection people (<https://efcweb.org/YoungEFC.html>).

Finally, please know that EFC will continue to stand strong, embracing and uniting you along the lines of the definition of a federation being “a group of people or local entities united in a larger-scale and structural relationship having common interest, activity and purpose”. Together we’ll continue building our relationships and activities stronger than ever! For now, remain healthy and keep up your spirits!

***Arjan Mol, EFC President***

# CORROSION AWARENESS DAY 2020

## CORROSION AND LOW CARBON ENERGIES

Webinar of the World Corrosion Organization on occasion of Corrosion Awareness Day

Friday, 24 April 2020, 14:00 – 16:00 CEST



The COVID-19 crisis has an impact on nearly every aspect of life and we hope that you and your families are well. Nevertheless, life goes on and Corrosion Awareness Day is approaching rapidly.

This year the World Corrosion Organization (WCO) has organized a **Webinar** dealing with **Corrosion and Low Carbon Energies**. The topic is of paramount interest at the moment because of the shift from fossil fuel-based energy production to low carbon energies.

WCO has organized a panel of internationally renowned speakers on this topic.

### Program:

Chair: **Damien Féron** (CEA, France)

- **Raul R. Rebak** (GE, USA): Environmental Degradation of Light Water Reactor Fuel Rods in the Entire Fuel Cycle

- **Digby D. Macdonald** (University of California at Berkeley, USA): Corrosion issues in Fusion Reactors
- **Gareth Hinds** (NPL, UK): Cost reduction of water electrolyzers via insights into anode current collector corrosion
- **Ralph Bässler** (BAM, Germany): Corrosive CO<sub>2</sub>-stream components, challenging for materials to be used in CC(U)s applications
- **Polina Volovitch** (ENSCP, France): Corrosion & solar panels

You can listen to the presentations which show the state of the art and discuss current developments with the experts.

[Click HERE to join the WCO Webinar free of charge!](#)

---

## FURTHER EVENTS ORGANISED IN CONJUNCTION WITH CORROSION AWARENESS DAY 2020

- **How does corrosion influence the health of concrete?**
- **Predicting corrosion protection: First sight at Electrochemical Impedance Spectroscopy**
- **Hungarian Corrosion Awareness Day**
- **Corrosion, how can we avoid it?**
- **Corrosion Photographic Competition and Online Technical Presentation**
- **Corrosion of Materials used in Energy Industry**
- **mCBEEs Corrosion videos**
- **Join us for a short but informational video about corrosion, specifically in the Oil & Gas industry**
- **Keeping in touch with corrosion**
- **COMSOL Multiphysics Free online session Corrosion**

For detailed descriptions of the activities, please visit the *YoungEFC* website at: <https://efcweb.org/YoungEFC.html>

## FOR A SUSTAINABLE WORLD: CORROSION AWARENESS DAY, APRIL 24TH, 2020

By Philippe Marcus

President of CEFRACOR (French Corrosion Society), Former President of the EFC, Head of Physical Chemistry of Surfaces of Institut de Recherche de Chimie Paris, Chimie ParisTech, CNRS, PSL University.

In France, environmental material degradation has cost over 80 billion euros in 2019, and more than 2500 billion dollars worldwide. An increased effort in scientific and technological research, and a better awareness in education and training (both initial and continuing), are essential. The general public, as well as public authorities should be alerted. This is the objective of the Corrosion Awareness Day, launched by the World Corrosion Organisation, with support from the European Federation of Corrosion and the French Corrosion Society, scheduled for April 24th, 2020.

84 billion euros lost: this is the estimated cost of corrosion in France in 2019, based on the usually acknowledged cost of about 3.5% GDP.

Aging, degradation, failure of metallic materials used for road infrastructures, oil pipelines, gas pipes, transportation (cars, trains, airplanes); all this results mainly from the material surface interaction with the environment, and the chemical reaction of corrosion. Besides this exorbitant cost, major problems are linked to materials degradation under the effect of the environment: damage to the reliability of industrial facilities, to the safety of people and goods, health issues.

We must prevent, or at least slow down, corrosion: an increased awareness is necessary, and it should not be limited to materials specialists, who are widely informed, but should be more general, and reach decision makers, public authorities, and the general public (from youngest to oldest!).

A lack of awareness or understanding of the complex scientific and technical aspects of corrosion phenomena is often observed, and results in an underestimation of the importance of risks and cost.

What are the action levers? The answer is: education and training, research, and innovation. Education in its broadest sense, which should include initial education at every level from primary to university and engineering schools, as well as continuing training (technicians and engineers).

Academic and industrial research: high-level research is already in place in French public laboratories and large organisations (Universities, Engineering schools, CNRS, CEA). Most major French corporations have an R&D activity on corrosion protection. However, these efforts should be increased (as well as the total research effort in France!).

Fundamental research on corrosion mechanisms should take into account all scales, both in terms of length from the atomic or nanometric scale at which the corrosion phenomena start on a material surface to the macroscopic scale at which the degradation often becomes irreversible and failure occurs, and in terms of time, which is a function of the targeted lifetime (a few seconds for the launch of a rocket, to hundreds of thousands of years for nuclear waste materials storage). The new knowledge thus produced should be used as a base for more applied research and for the development of new technologies.

Beyond classic areas of metallic materials usage, which concern a large spectrum of industrial sectors, better protection of materials against corrosion is a key factor in the development of new applications, in particular to ensure the energy transition (fuel cells, batteries, photovoltaic). Hence, as an example, in the perspective of an energy policy based on hydrogen, many materials problems arise and corrosion protection is a major issue.

Awareness actions for the greater public and public authorities are also required.

To promote awareness of societal issues related to corrosion, and mobilise the main actors, the World Corrosion Organization (WCO) launched the first Corrosion Awareness Day in 2010. In 2020, this Awareness Day will take place as usual on April 24th.

This action is relayed at the European level by the European Federation of Corrosion and at the national level by the CEFRACOR (French Corrosion Society).





# WEBINARS IN CORROSION SCIENCE AND ENGINEERING

The restrictions resulting from COVID-19 have an impact on the way research and innovation is currently being presented and discussed. In this situation, EFC is striving to provide you with the best virtual ways of continuing the important exchange of information and discussion of developments in corrosion science and materials protection.

## **Watch out for the first webinar in the series!**

**Topic:** Corrosion Protection by Organic Coatings  
*organised by the EFC Working Party on Coatings*

**Date:** Wednesday, 20 May 2020, 14:00-16:00 CEST

## **Preliminary Programme:**

Chair: **Wolfram Fürbeth**

- **M. Fedel:** Steel corrosion protection using post-consumer polyethylene terephthalate coatings
- **H. Terryn:** Parallel EIS and IR measurements to study formation and destruction of interfacial bonds between polymers and metal oxides
- **S. Gibbon:** Mapping the Transport Channels in an Epoxy Coating with AFM-IR,
- **J. van Dam:** Effect of surface chemistry on the bonding mechanisms, strength and durability in steel-epoxy adhesive bonds

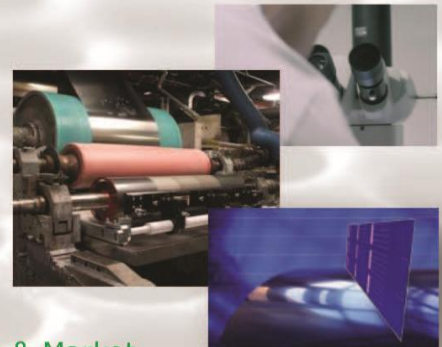
Further details will be announced on the EFC website at: <https://www.efcweb.org>

*Advertisement*



## **Your partner for coating metallic products and composite solutions !**

**Development of innovative coatings from lab scale to industrialisation:** Metallic, organic & functionalised coatings, 2D & 3D - Advanced coating technologies : wet coatings, plasma & vacuum deposition, hot dip, electrochemical surface treatments - Industrial support & value creation  
**Corrosion testing:** Climatic chambers & salt spray chambers - Electrochemical testing - Design of specific corrosion test upon request



[www.crmgroup.be](http://www.crmgroup.be) - The Bridge between Science & Market

*Advertisement*

## **The International Standard ISO 12944 for Coating Inspectors is available now! IFO Institute and DIN CERTCO starts courses in Dubai**

**The international standard ISO 12944** is the "Know-How" for corrosion monitoring activity with paints and coatings. Inspectors in the world and everyone being responsible for corrosion management can learn more now about the corrosion phenomena in steel constructions and its monitoring and protection.

The IFO Institute starts **education courses in Dubai beginning from Autumn 2020.**

These courses are addressed to everyone being open-minded for building activities of steel constructions.

We recommend booking this course, especially that the participation in the course is a basis for the international certificate of DIN-Geprüft-Surface-Treatment-Inspector.

**Book the course today!**

Contact: [agatha.swierczynski@dincertco.de](mailto:agatha.swierczynski@dincertco.de)

Learn more at: [www.dincertco.de/12944\\_en](http://www.dincertco.de/12944_en) / [www.ifo-gmbh.de](http://www.ifo-gmbh.de)



# WHO IS WHO

## APPOINTMENT OF BoA AND STAC MEMBERS FOR THE CURRENT TERM OF OFFICE

The Federation welcomes the members of its **Board of Administrators (BoA)** and the **Science and Technology Advisory Committee (STAC)** who were appointed by the EFC General Assembly for the next three-year term of office (1 January 2020 – 31 December 2022).

The elected members of the **Board of Administrators (BoA)** for the next three-year term of office are (*in alphabetical order*):

Prof. Mario FERREIRA, Portugal; Dr. Patrick KEIL, Germany; Dr. Milan KOURIL, Czech Republic; Dr. Eng. Agnieszka KRÓLIKOWSKA, Poland; Dr. Bálint MEDGYES, Hungary; Prof. Edoardo PROVERBIO, Italy; Mr. Marcel ROCHE, France; Dr. Patrik SCHMUTZ, Switzerland.

Retired from BoA at the end of 2019 are:

Prof. Dr. Joao Salvador FERNANDES, Portugal; Prof. Dr. Alexander V. MURADOV, Russia, Prof. Dr. Tomáš PROŠEK, Czech Republic; Prof. Dr. Tamás István TÖRÖK, Hungary.

Administrators appointed by the three countries providing the General Secretariat Offices and from the country of registration in law:

Prof. Marjorie OLIVIER, Belgium; Prof. Philippe MARCUS, France; Prof. Willi MEIER, Germany; Mr. Gareth HINDS, United Kingdom.

The elected members of the **Science and Technology Advisory Committee (STAC)** for the next three-year term of office are (*in alphabetical order*):

Prof. Ralf FESER, Germany; Prof. Fouzia HANNOUR, Qatar; Mr. Marcel ROCHE, France; Dr. Bálint MEDGYES, Hungary; Prof. Dr. Alexander V. MURADOV, Russia.

Retired from the STAC at the end of 2019 are:

Mr. Don HARROP, United Kingdom; Prof. Dr. Alda Maria PEREIRA SIMOES, Portugal; Prof. Dr. Tamás István TÖRÖK, Hungary; Prof. Dr. Tunç TÜKEN, Turkey.

*All Working Party Chairs are members of the STAC with the same rights as elected members.*

EFC is very grateful for the hard work and the many hours of their time all members of BoA and STAC have spent working on behalf of the Federation, and would like to thank them for their effort.

**EFC Administration:** <https://efcweb.org/Administration>

---

## AFFILIATE MEMBERS' NEWS AND STUDIES

### CIDETEC SURFACE ENGINEERING LEADS AN ALTERNATIVE PERSPECTIVE FOR CORROSION MONITORING: U-CROSS PROJECT

The use of sensors for monitoring is a well-known approach that has been proposed on aeronautic industry: e.g. for civil airframes such as low sweep business jets. In fact, corrosion sensors based on passive systems are being used in aircraft and land-based assets.

So far, most of the efforts in the field of corrosion science have been focused on the development of two type of sensors for corrosion monitoring:

1) Dedicated sensors based on environmental parameters such as relative humidity, time of wetness, presence of pollutants (e.g. chlorides, SO<sub>2</sub>, NO<sub>x</sub>), pH measurement, UV light, etc.

- 2) Sacrificial sensors based on electrical or electrochemical measurements:
- 2.1) Instantaneous measurements to characterize the corrosiveness (e.g. corrosion rate, corrosion potential).
  - 2.2) Cumulative measurements (e.g. electrical probe resistance) to detect the total damage to the material.

Nowadays, the strategy of commercial sensors has been to combine the two types of sensors above in the same device. Their main advantage is to monitor multiple environmental parameters and corrosiveness in order to improve the estimation of the corrosion damage.

Although the overall damage might be detected using dedicated and sacrificial sensors, it can be hard to distinguish the damage between different steps of corrosion: e.g. initiation and propagation. In addition, if the type of corrosion cannot be identified (i.e. generalized or localized), the level of damage can be underestimated, thus increasing the uncertainty in the durability and lifetime of materials and components.

An alternative perspective can be used to address such limitations, namely: a third type of sensors based on non-destructive testing (NDT). The idea is to obtain information about the signatures of specific propagation mechanisms (e.g. propagation in depth during pitting or delamination front of the coating/metal interface during filiform corrosion, etc.) within the **U-CROSS project** (“Early detection and progress monitoring and prediction of corrosion in aeronautic Al alloys through calibrated Ultrasonic CorROsion Sensors application”). The approach of this project is to design, develop and validate a methodology that combines passive (Acoustic Emission -AE-) and active (Ultrasonic Testing) sensors for corrosion monitoring, enabling them for real time detection at early stages (e.g. initiation of the corrosion) of localized corrosion as well as for monitoring the progress of damage with time. In fact, the nucleation and propagation rate remain difficult to predict and vary depending on the type of corrosion occurring (e.g. pitting, exfoliation, corrosion fatigue, stress corrosion cracking, etc.).

The main application will be devoted to aircraft, although it can be extrapolated to any other situation with similar corrosion problems. Aluminium alloys as light materials are present in many parts of the aircraft, such as fuselage and engines, thanks to their mechanical properties.

One of the main drawbacks of Al alloys, which is limiting their application, is that they are sensitive to microstructural localized corrosion under normal operation conditions (i.e. changes in wetness and temperature due to the continuous changes of altitude and climate).

The U-CROSS project funded under H2020-EU.3.4.5.4, with grant agreement ID: 864905) is part of the H2020-Clean Sky 2 program

(<https://cordis.europa.eu/project/id/864905>). It is coordinated in collaboration with 4 partners (UBFC, MISTRAS, TITANIA, INSA and with Dassault Aviation as topic manager) by CIDETEC Surface Engineering, a private organization for applied research founded in 1997 and located in the Scientific and Technological Park of Donostia-San Sebastián (Gipuzkoa, Spain). CIDETEC Surface Engineering is specialized in providing innovative solutions throughout the entire value chain for the automotive, aerospace and extreme environment sectors, among others, such as detailed characterisation of bulk materials and surfaces, design of tailor-made materials and surface treatments, industrial scale-up of different coating and surface modification techniques, development of different coatings (surface solutions) for protection against corrosion/tribocorrosion. CIDETEC's facilities are fully equipped for corrosion control and monitoring (accelerated corrosion tests, conventional electrochemical tests and localized ones), and to produce/apply base formulations using a broad range of technologies (anodizing, electrodeposition, dip, spray, electrophoretic deposition, flow coating, etc.) at laboratory and industrial scale.



*Photos: Certain facilities for corrosion characterization at CIDETEC Surface Engineering*



# EFC EVENT REPORTS

## INTERNATIONAL CONFERENCE ON MATERIALS “MTECH 2019”

POREČ, CROATIA, 9 -12 OCTOBER 2019 (EFC EVENT No. 452)

The 2<sup>nd</sup> International conference on materials “MTECH 2019” was organised by the Croatian Society for Materials Protection, Croatian Society for Materials and Tribology, Croatian Society for Heat Treatment and Surface Engineering and Croatian Centre for Non-destructive Testing. Around 100 participants from Croatia and abroad gathered to disseminate and discuss recent research, innovation and development in the field of corrosion, heat treatment, materials, materials testing and tribology.



Every day, the conference started with a joint plenary session, where renowned scientists and experts, namely D. Terry Greenfield (president of NACE International), Prof. Dr. Likun Xu (State Key Laboratory for Marine Corrosion and Protection, China), Dr. J. W. Erning (BAM, Germany), Prof. Dr. Giovanni Bruno (BAM, Germany) and Prof. Dr. B. Podgornik (University of Ljubljana, Slovenia) held their lectures, followed by work in parallel sessions.

In the framework of the conference, an extensive exhibition of companies dealing with materials took place and significantly contributed to the conference's success by enabling the practical exchange of experiences.



The conference's programme was complemented with four thematic workshops: protective coatings (organized by NACE and the Croatian Society for Materials Protection), the quality assurance of NDT, special features of thermal processing and surface engineering, and updates in the field of mechanical properties testing and equipment calibration. Students from the Faculty of Mechanical Engineering and Naval Architecture presented their papers and posters. The second MTECH international conference will take place in Croatia in 2021.

*Ivan Stojanović*  
Croatian Society for Materials Protection

Advertisement



**MISTRAS**

**Together let us fight to make the corrosion no longer as a fatality !**

**30+ PhD LEVEL ENGINEERS WITHIN THE GLOBAL GROUP**

**IN-HOUSE MANUFACTURING OF NDT INSPECTION AND MONITORING SYSTEMS**

**LEADING SUPPLIER OF ADVANCED SERVICES**

contact.fr@mistrasgroup.com +33(0)149.82.60.40 www.mistrasgroup.fr



# 13TH ANNUAL CONFERENCE OF THE POLISH CORROSION SOCIETY: “STATE-OF-THE-ART ANTICORROSION TECHNOLOGIES”

JACHRANKA, POLAND, 21-23 OCTOBER 2019.(EFC EVENT NO. 458)

This event took place on 21-23 October 2019 at the Windsor Hotel, Jachranka under the slogan “*Trends and achievements in corrosion protection*”. This year's conference brought together about 120 participants, with 31 papers being presented in six thematic sessions. The conference was sponsored by Sika, Graco and Jotun and was organised under the honorary patronage of: the Polish Chamber of Steel Structures, the Polish Zinc Society and the Road and Bridge Research Institute. Media patronage was provided by the following journals “Ochrona przed Korozją”, “Mosty”, “Lakiernictwo Przemysłowe”.

The conference was opened by Agnieszka Królikowska, who discussed the most important events in PSK's activity over the last two years: The EUROCORR 2018 Congress in Krakow organised by the Polish Corrosion Society was a significant success. With a record number of guests, the Congress was highly rated by the participants and the EFC authorities.

Aleksandra Baraniak, a very active member of the PSK since its foundation and the unquestionable authority in the field of corrosion protection, passed away in January 2019. The brochure with reprints of her articles was published by PSK and added to the conference materials.

After the opening remarks, Grand Corrosionist Medals were presented to Iwona Gajecka, Lech Adamczewski and Krzysztof Saramowicz. The Polish Corrosion Society's “Red Kite” prize for the best product in the field of corrosion protection was presented to the Hempel company for the Avantguard zinc epoxy primers. The “Red Kite” prize for the best company was presented to Novol Sp. z o.o. In addition, the company's Novol Academy conducts a wide educational campaign (e.g. vocational schools, technical schools, trainings courses)

The results of the competition for the best engineering, master and doctoral dissertations were then announced. Works performed in 2017-2018 were assessed. In the doctoral dissertations category, the award went to Anna Dobkowska of the Faculty of Materials Science and Engineering, Warsaw University of Technology, for her paper entitled “Corrosion resistance of magnesium-lithium alloys”. In the master thesis category, the award went to Ewa Siuta (see photo) of the Silesian University of Technology for the paper entitled “Analysis of the influence of surface passivation with nitric and citric acid on the corrosion resistance characteristics of austenitic steel”.



In the engineering dissertations category, the prize went to Sara Helena Koncewicz of the Rzeszow University of Technology for her work entitled “Scale morphology on the CMSX-4 nickel superalloy in the initial stage of high temperature oxidation at 1000°C”. The winners briefly presented the awarded works.

During the plenary session, the following four papers were read: “Hydrogen in the galvanizing process - in industrial theory and practice” (M. Sozańska); “Avantguard – a new definition of anti-corrosion” (M. Puczarski); “Fire hazards in the tunnels - fire resistance, Polish and European approach” (I. Gajecka), and “Ultrasonic thickness measurement - advantages, disadvantages and limitations”, which was covered in three presentations: L. Komorowski (IBDiM) discussed the most commonly used methods for measuring coating thicknesses; H. Prechtl (Elektrophysik) demonstrated the ultrasonic determination of material thickness and D. Droszkowski (Agencja ANTICORR Gdańsk) pointed out some problems with this method. The authors concluded with an invitation to the workshop “Measurement of thickness by ultrasonic method”.

On the second day, papers were presented in the following parallel thematic sessions: Protective coatings and infrastructure, Corrosion and reinforced concrete protection, Electrochemical protection, Power engineering and transmission networks, and Machines. The largest session was on protective coatings, with topics including the management of processes related to corrosion (based on project IMPACT PLUS); important issues raised at the NACE CORROSION 2019 Conference; the assessment of anticorrosion industry enterprises; German standards and regulations concerning anti-corrosion protection of bridges; JOTUN company experience on the corrosion protection of

steel bridges; corrosion behaviour of AA6060 aluminium alloy in glycol propylene solution; new anticorrosive coatings presented at European congresses; modern solutions for buried steel structures working in demanding environments; research requirements during testing of anticorrosion systems; quality of destructive and non-destructive thickness measurements of painting systems; new Zn-Al alloy wires for spray metallization; Optimization of cleaning and coating processes

The session on electrochemical protection, organized every two years, included papers entitled: Certification of persons involved in cathodic protection; Cathodic protection of marine structures; WebProCat + Goliath remote monitoring system; KT Index – Cathodic protection effectiveness evaluation in Italy; Electrochemical aspects of energy grounding; and Laboratory tests of the PUR polyurethane coating for gas networks.

The session on corrosion and protection of reinforced concrete structures dealt with topics such as the impact of environment and actions on maritime structures; the repair of reinforced concrete structures according to PN-EN 1504; the chloride-induced corrosion of steel in concrete; examples of shotcreting as an effective technology; and the durability of concrete according to the code PN-EN 206+a1:2016- 12 and its national appendix PN-B-06265:2018-10.

Regarding power engineering and transmission networks issues, the discussed topics included: the wear mechanism for protective coatings in boiler plant components; corrosion protection of first and secondary constructions in power plant; High-pressure water jetting in the petrochemical industry; anticorrosion coatings via thermal spraying methods; and environmentally safe phosphating for aluminium alloys.

The final session of the second day concerned the problems of using thermal spraying and PTA surfacing processes for the production of machine parts as well as protective coatings used in the production of agricultural machinery.

On the third day of the conference, a general assembly of the Polish Corrosion Society (PSK) took place. PSK President Agnieszka Królikowska summarised the existing PSK Sections and Commissions, then new initiatives were discussed. The PSK has established cooperation with NACE; joint symposia and courses are planned. Certification by PSK is another initiative of the Society as well as the program for Young Corrosionists. All of the presented papers met with much interest by the audience and inspired lively discussions. The papers (with abstracts in English) can be found at <https://psk.org.pl/konferencje-psk2/jachranka-2019> by logged-in PSK members.

## FUTURE EUROCORRs – THE EUROPEAN CORROSION CONGRESS

**SAVE THESE DATES!**



### EUROCORR 2021 19-23 September 2021, Budapest, Hungary

Motto: *Materials science and advanced technologies for better corrosion protection.*

EUROCORR 2021 is hosted and organised by the Hungarian Corrosion Society – HUNKOR in cooperation with Diamond Congress Ltd.



Website: <http://eurocorr2021.org>

### EUROCORR 2022 28 August - 1 September 2022, Berlin, Germany

Motto: *Corrosion in a changing world – Energy, Mobility, Digitalization*

EUROCORR 2022 is hosted by the German EFC Member Societies GfKORR and DECHEMA.



## FORTHCOMING EFC EVENTS 2020/2021



Please check the respective event websites for postponements!

### EFC Event No. 464

Stare Jabłonki, Poland,  
20-22 May 2020 (to be postponed – dates to be confirmed)

#### **PSK Conference “State-of-the-art-anticorrosion technologies”**

Scope: new anticorrosion technologies and products for steel and concrete, anticorrosion inspector's work, corrosion in transport utilities; corrosion protection in infrastructure, intumescent paints, session of “PSK YOUNG”

<https://psk.org.pl/konferencje-sympozja-targi/konferencja-psk-w-starych-jablonkach>

### EFC Event No. 465

Ustroń Jaszowiec, Poland  
1-3 June 2020 (to be postponed – dates to be confirmed)

#### **28th National Conference on Scientific and Technology "Anticorrosion. Systems - Materials - Coatings"**

Scope: 1. Modern materials, coatings and developments in corrosion prevention, 2. EU requirements for corrosion protection; 3. Corrosion protection for machines, equipment and installation; 4. Corrosion problems in the construction industry; 5. Evaluation of coatings and corrosion protection.

<http://gliwice.sitpchem.org.pl/28-antykorozja-2020/>

### EFC Event No. 461

Lviv, Ukraine, 9-11 June 2020 (dates to be confirmed)

#### **XIII International Conference "Corrosion-2020"**

Theme: Problems of corrosion and corrosion protection of materials

Scope: fundamentals of corrosion and corrosion assisted mechanical fracture; hydrogen and gas corrosion; new corrosion resistant materials and coatings; inhibitor and biocidal protection; electrochemical protection; testing methods and corrosion control; corrosion protection of oil and gas industry and chemical equipment (Round table).

<http://www.ipm.lviv.ua/corrosion2020/en/index.html>

### EFC Event No. 459

6-10 September 2020 (to be confirmed)

#### **EUROCORR 2020**

[www.eurocorr.org](http://www.eurocorr.org) [www.eurocorr2020.org](http://www.eurocorr2020.org)

### EFC Event No. 460

Malaga, Spain  
Postponed to June 2021 (dates to be confirmed)

#### **Symposium on Corrosion and Surface Protection Methods - CNMAT 2020**

Scope: During the last decades, surface engineering has evolved from the first stage of development of surface treatment and coating methods to improve the corrosion and wear properties to a new scenario in which surface functionalization for all types of applications is the main objective. Nowadays, new surface development providing optical, electrical, magnetic, biomedical functionalities and resistance to their work environment is an important demand in many industrial sectors.

This symposium aims to provide a forum of discussion about the latest developments in surface treatments and coatings that combine functionalization with corrosion protection, paying special attention to the new experimental techniques that allow the characterization of their properties.

Language: Spanish

<https://cnmat2020.com/>

### EFC Event No. 455

Antibes Juan-les-Pins, France  
postponed to June or October 2021 (dates to be confirmed)

#### **7èmes Journées Protection Cathodique et Revêtements Associés (7<sup>th</sup> Cathodic Protection and Associated Coatings meeting)**

Scope: This event on cathodic protection and associated coatings is devoted to end users as well as suppliers of equipment, designers, service companies, authorities, laboratories, universities and research centres. Progress accomplished in terms of science and techniques, standardisation, and certification of personnel will be addressed for all application sectors (buried, marine or concrete structures, internal components of equipment). An exhibition will complete this event.

Organised by CEFRA COR

<https://www.cefracor.org>



### **EFC Event No. 451**

Cambridge, United Kingdom  
5-9 September 2021 (NEW DATE!)

### **Advances in Corrosion Protection by Organic Coatings - ACPOC**

Scope: Presentations on latest advances in corrosion protection by organic coatings, including topics on pre-treatments and inhibitors.

<https://acpocconference.org/>

or contact [ruthbinghamfreelance@gmail.com](mailto:ruthbinghamfreelance@gmail.com)

For full details of these and a complete listing of many other future corrosion events held in Europe and throughout the world, go to the EFC Calendar of Events at: <http://www.efcweb.org/Events.html>

---

## **CONTACTS**

Editor: Douglas Mills, [dmills239@gmail.com](mailto:dmills239@gmail.com)

Assistant Editor: Ruth Bingham, [ruthbinghamfreelance@gmail.com](mailto:ruthbinghamfreelance@gmail.com)

The statements and opinions expressed in the e-newsletter are those of the contributors; the EFC assumes no responsibility for them.

### **LEGAL NOTICE:**

European Federation of Corrosion (EFC)

President: Prof. Arjan Mol

AISBL

Avenue des Arts 56/4C

1000 Bruxelles

Belgium

Association No. : 0425.591.656

VAT No.: BE 0425.591.656

E-Mail: [offices@efcweb.org](mailto:offices@efcweb.org)

Website: [www.efcweb.org](http://www.efcweb.org)

You will find our data privacy policy on our [website](#)

