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Newsletter No. 19

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Dear Members of the International Corrosion Council,

since our last newsletter (No. 18, July 16, 2019, icc-net.org) so many things have changed due to the COVID-19 pandemic. Since February 2020 all physical meetings, conferences and congresses were cancelled worldwide and some conference organizers already started to organize virtual conferences (e.g. EUROCORR 2020 by DECHEMA). In February 2020 the ICC Executive Committee (ICC-EC) and the organizer of the 21st ICC congress, the Brazilian Corrosion Association (ABRACO), decided to postpone the congress from 10-14 May, 2020, to December 2020, still hoping that the pandemic is overcome at that time and a “normal” physical congress would be possible. However, in September 2020 it became obvious that this dream would not fulfill and the congress date was shifted again to 20-23 July, 2021, still hoping for a physical congress. But in December 2020 it was decided to organize the 21st ICC congress at the scheduled date, however as a virtual event. With this decision the conference organizer ABRACO was faced on one hand with the challenge to convert a congress, already fully organized for physically attending participants, into a virtual conference.



Fig. 1: Virtual meeting (04.02.2021) of the ICC Executive Committee with Prof. Panossian, chair of the ABRACO organizing committee in Sao Paulo, Brazil

However, even much more demanding, the congress organizer also had to start all over again with completely new organizational approaches with respect to time schedule, plenary and keynote lecturers, oral and poster paper presenters, industrial exhibitors and sponsors. Basically, the congress had to be organized twice. In 4 virtual joint ICC-EC/ABRACO-meetings (04.02.2021, 09.04.2021, 04.06.2021, 02.07.2021) organizational issues were discussed in detail.

21st ICC congress

Now, a few weeks before the 21st ICC congress it is admirable to see the great success of the paramount efforts invested by the Brazilian congress organization team headed by Prof. Zehbour Panossian (she was recently elected president of ABRACO) in the design of an excellent programme shown on the conference website (<https://abraco.org.br/icc-congress2021>). With the consent of the ICC Executive Committee (ICC-EC) the conference organizer combined the 21st ICC congress with the annual conference of ABRACO (INTERCORR 2021) and a Workshop of the World Corrosion Organization (WCO) on corrosion issues related to the coming industrial transformation to low-carbon energy production (renewable energies, hydrogen technology, nuclear energy, and carbon capture, usage and storage (CCUS)). The WCO is a non-profit charitable, non-governmental organization recognized by the United Nations, and the ICC is a member society of the WCO since 2017 with a permanent seat in board.

Marcel Pourbaix Award

The ICC-EC is proud to announce the 2021 recipients of the Marcel Pourbaix Award (icc-net.org). This Award was established in April 20, 1995 to honor corrosion scientists for outstanding contributions to the international cooperation in the field of metallic corrosion. No restrictions as to membership in the ICC or in other societies apply in order to qualify for the Marcel Pourbaix Award. The awardee receives a medal (Fig. 2) and a certificate which is handed over virtually during the Opening Ceremony of the 21st ICC congress. This time we have two awardees: Prof Mario Ferreira, University of Aveiro, Portugal, and Prof. Tetsuo Shoji, Professor Emeritus, Tohoku University.



Marcel-Pourbaix Award



Prof. Mario Ferreira



Prof. Tetsuo Shoji

Fig. 2: Award and Awardees 2021

The ICC-EC congratulates the awardees for their outstanding contributions in science and technology of corrosion and failure mitigation. The recipients will give award lectures after the opening ceremony of the 21st ICC congress:

Prof. Ferreira: Sustainable and Self-healing Materials for Corrosion Protection

Prof. Shoji: Crack Tip Mechano-Chemistry and Roles of Hydrogen

Election of ICC officers

For the election of ICC officers (1st & 2nd Vice-chair) for the next 3 years term a nomination committee was appointed on 13 June, 2019 with Damien Féron/France (chair), Gustavo Duffó/Argentina and David Young/Australia. A list with 6 candidates was submitted to the ICC-EC which was sent as a ballot in December 2019 and January 2020 by email to all delegates of the ICC member countries for voting at the next General Assembly (GA). As the next GA had to be postponed from May 2020 to July 2021, reminders to submit the ballots were sent out on 10 February, 2021, and 16/17 June, 2021. Due to the fact that the GA must be held virtually, the delegates of the ICC member countries were requested to resent their ballots to the ICC Secretary, Tim Gommlich, (only to the Secretary) by email or mail by 16 July, 2021 (deadline). The secretary will be and stay the only person of the ICC-EC who knows the sender of a ballot and, thus, will guarantee in his person the confidentiality of the votes. In order to be valid the order of preference shall be indicated **behind each name** in the ballot (1st, 2nd, 3rd, 4th, 5th, 6th). This is important for the ballot evaluation procedure by the tellers. If you have not done so on your returned ballot you still have the opportunity to send a revised ballot by 16 July, 2021. The previous version will be deleted by the Secretary.

Virtual General Assembly

The virtual General Assembly of the International Corrosion Council will be held in two parts:

GA-1, July 19th, 2021, 08:00 h Brazilian Time (CET-5)

GA-2, July 21, 2021, 10:30 h Brazilian Time (CET-5)

The ZOOM-platform will be used. The attendance links will be sent by email only to representatives of ICC members who have registered for the congress.

The ICC-EC is proud to announce that during the last term, the number of ICC member countries could be increased from 60 (2017) to 68 in 2021, provided acceptance at the next GA. For the list of member countries please visit the ICC homepage (icc-net.org). This is a great step forward for increasing the global network of corrosionists.

Venue of the 22nd ICC Congress in 2024

The GA will also decide on the venue of the next ICC congress which will be held in 2024. The GA will decide between two bids. One is from the Australasian Corrosion Association (ACA) which suggests Adelaide in Australia as venue. The second bid is from the Chinese Society for Corrosion and Corrosion Protection

(CSCP) proposing Xi'an in China as the next venue. Delegates of the ICC member countries: Please keep in mind that the voting on the next venue is only possible for delegates who have registered for the congress, because only those individuals receive the access links for the GA.

ICC and WCO

All corrosionists worldwide profit from the activities of the WCO fighting for public awareness of the importance of corrosion and materials protection in all parts of our daily personal and industrial life. An important tool is the proclamation of an International Corrosion Awareness Day, 24th April each year (corrosion.org). Activities on this day organized by corrosionists all over the world are not aiming at corrosion experts. The message goes out for the corrosion laypersons, for those individuals who don't know much about materials corrosion, but are responsible in the daily life for functionality in healthcare, in industrial processes and public infrastructure, responsible for environmental sustainability, for public safety, social integrity and economic efficiency. These are the areas where materials corrosion is a major, but heavily underestimated issue. Therefore, the message goes out specifically to the deciders in industrial companies, in administrations and in politics, to make them aware that materials corrosion is an issue that needs public attention and control, everywhere.

The International Corrosion Awareness Day wants to develop a global awareness that materials constitute the physical matter of all products and engineered systems, and that materials properties (including corrosion resistance) frequently define the capabilities and limitations of a technology. It must become publicly accepted that materials preservation and corrosion control are fundamental and key enabling factors for all technologies. Unfortunately, there is often only a limited awareness of how critical and difficult it is to solve corrosion problems, and what real implications are to the society. Research and development (R&D) in this field is, therefore, of paramount importance and must receive high priorities in financial support. Innovative approaches in the fields of materials, surface protection, corrosion control, and condition-based monitoring will determine whether energy efficiencies can be improved; whether communication, transportation and civil infrastructure systems can be advanced in an environmentally benign way; and whether technical and public safety and security can be sustainably strengthened.

The ICC member societies worldwide can increase the corrosion awareness in their country by national awareness activities thereby using experiences and tools published by the WCO (corrosion.org). After all, WCO activities have already resulted in including the aspect of corrosion and material protection in European collaborative research programs. Thus, it is finally publicly appreciated that new technologies place new demands on materials and their resistance in new corrosive environments underlining the importance of R&D funding in academia, research institutions and industry.

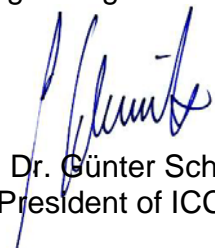
Right now we are standing at the edge of a technological transition to use preferentially renewable energy sources like sun, wind, water or geothermal heat, to back up low-carbon energy production and the upcoming hydrogen technology. This transition has global dimensions. Hydrogen will soon substitute other energy sources, like coal, oil and natural gas. Hydrogen will be used as fuel for power stations, for transportation with trucks, busses, cars, trains and planes and for producing chemicals in combination with carbon dioxide as carbon source. The challenge in the upcoming hydrogen technology is that materials are contacted with hydrogen under new environmental conditions with respect to temperature, pressures, mechanical impacts and other chemicals. Will this lead to materials degradation and materials corrosion like hydrogen embrittlement? Do we have safety issues? Obviously, we don't know enough to cope with the upcoming technical challenges in materials selection and prevention of corrosion failures. We need R&D in this field.

The WCO workshop at the 21st ICC congress addresses corrosion issues related to the upcoming industrial transformation to low-carbon energy production in order to increase not only in this part of the world the awareness of corrosion issues encountered with new technologies.

The continuation of the ICC membership in the WCO will be an item on the agenda of the GA at the 21st ICC congress. This membership has a symbiotic character and represents a clear win-win situation. ICC members profit from the increasing public awareness of the importance of corrosion and materials protection which increases the willingness of deciders in politics, administration and industry to fund R&D in these fields. With more members WCO can demonstrate at the UN with more emphasis that corrosion and asset protection is a global issue that needs more attention, more action and more financial support. The WCO member ICC stands for direct communication and networking with corrosion communities in (now) 68 countries worldwide. For ICC and WCO this increases the impact of the joint efforts of both organizations in reaching their goals. As a board member the ICC can directly influence the direction of WCO activities and actions. Such options should be used more frequently in the future. Please vote for the continuation of the ICC membership in the WCO. It's beneficial and financially affordable for the ICC.

We hope to meet you all virtually at the 21st ICC congress. Please register before 16 July, 2021, to receive the access code. Due to the virtual format of the event no on-site registration is available.

Best greetings



Prof. Dr. Günter Schmitt
President of ICC



Dr. Tim Gommlich
Secretary of ICC