

Minutes

Fall Business Meeting of the EFC Working Party 4 'Nuclear Corrosion'

September 12, 2018

Krakow Congress Centre, Krakow, Poland

Written by:

Laure Martinelli and Stefan Ritter

Diffusion:

Attendees and apologies
WP4 members & friends
Roman Bender (EFC Scientific Secretary)
Hélène Illaire (EFC Managing Officer)
Ines Honndorf (EFC website)
Wolfram Fürbeth (EFC STAC Chairman)
J.M.C. Arjan Mol (EFC President)

Attendees (23):

Vaclav Bystriansky (UCT Prague), Nikitas Diomidis (NAGRA), Dirk Engelberg (Univ. Manchester), Damien Féron (CEA), Hannu Hänninen (Aalto Univ.), En-Hou Han (IMR), M. Hanafi (IIUM), Renata Latypova (Univ. Oulu), Christina Lilja (SKB), Tom Majchrowski (NDA), Laure Martinelli (CEA), Yamamoto Moshino (JAEA), Michal Novak (UCT Prague), Raul Rebak (GE-GRC), Stefan Ritter (PSI), Petr Sajdl (UCT Prague), Michel Schlegel (CEA), Sato Tomonori (JAEA), Aleksandra Treichel (PSI), Kamila Wilczynska (CEA), Toshio Yonezawa (Tohoku Univ.), Kaji Yoshiyuki (JAEA), Bojan Zajec (ZAG)

Apologies for absence received from:

Walter Bogaerts (KU Leuven), Séverine De Vroey (Engie), Catherine Guerre (CEA), Renate Kilian (Framatome GmbH), Stuart Lyon (Univ. Manchester), Jan Macak (UCT Prague), Hans-Peter Seifert (PSI)

Agenda:

- 1) Opening of the meeting, apologies for absences, approval of the agenda
- 2) EFC WP4 prize award ceremony
- 3) Approval of the minutes of the 2017 Fall Meeting (in Prague)
- 4) EFC WP4 internal matters
- 5) EFC WP4 publications
- 6) EFC WP4 past events
- 7) EFC WP4 future events
- 8) EUROCORR's
- 9) Any other business (website, next meeting, EU-projects, etc.)
- 10) Closure

Annex:

Annex 1) Meeting slides presented by S. Ritter*

Annex 2) NuCoSS-19 slides*

** Document available only on the private space of the EFC WP4 website, for WP4 members only.*

1. Opening of the meeting, apologies for absences, approval of the agenda

S. Ritter opened the Fall Meeting and thanked the audience for coming. The agenda was presented and has been approved by all (see above and Annex 1).

2. EFC WP4 prize award ceremony

The ceremony began with the Henrie Coriou Award given every year to a corrosion expert especially recognized in the field of nuclear corrosion. The Jury, composed of the Chairman and Vice-Chairman of the EFC WP4 and three members nominated during the Fall Meeting of the EFC WP4 (the year before the Honorary Medal is awarded) has selected Dr. Gérard Pinard Legry (France) in recognition of the outstanding contributions to corrosion science and engineering in the nuclear field. Due to the absence of Dr. Pinard Legry, the Medal will be awarded at the CEFRACOR General Assembly in Paris, on September 21 by Damien Féron. The Medal is sponsored by CEA.

Then S. Ritter and L. Martinelli continued with the award ceremony of the two other prizes given during each EUROCORR. Each prize included a diploma, a book sponsored by CEA and a knife sponsored by Cornet (as well as some excellent Swiss chocolate). The Juries for these prizes are composed of WP4 members, a member of the Young EFC, and the WP 4 Chair & Vice-Chair. To be eligible for the oral prize a full paper needed to be included in the conference proceedings:

- The best oral presentation award has been attributed to Kamila Wilczynska (CEA & INP Grenoble, France) for her presentation on “Simulation of C-Ring, O-Ring and tensile ring specimens for iodine induced SCC experiments on zirconium alloy”.
- The Best poster presentation award has been assigned to Sato Tomonori (Japan Atomic Energy Agency, Japan) for his poster on the “Investigation of the effects of irradiation on corrosive environments using in-situ electrochemical measurements during gamma-ray irradiation”.

- Moreover, a special poster prize has been awarded to Joakim Halldin Stenlid (Fysikum, Stockholm University, Sweden) for his poster on “Modelling the electrochemical interface by DFT – The case of aqueous copper corrosion”. This poster was clearly related to nuclear corrosion, but not registered under WP4, and finished in the top 5 of the overall EFC poster prize competition. For this reason, WP4 decided to congratulate Joakim Halldin Stenlid adding a special prize.

Finally, a discussion came up about possible reasons that only few persons registered for the oral prize in advance (4 candidates for the oral prizes). S. Ritter proposed to further improve the communication activity about those WP4 prizes for future EUROCORRS (e.g., to add the prize rules to the EUROCORR website).

3. Approval of the minutes of the Prague meeting 2017

No comments were received and no corrections have been asked for. Therefore, the 2017 minutes were approved by all.

4. EFC WP4 internal matters

S. Ritter explained the rules for being WP4 member (= delegates nominated by the EFC member societies and individuals nominated by the Chairman) or “friend” (= those who are interested by the WP but not member of an EFC member society and not nominated by the Chairman). He also asked all attendees to check and sign the membership list, which circulated in the meeting room.

S. Ritter reminded the WP4 objectives for the 2018-2020 period, which are the following:

- To provide links between European teams and EU-funded programs in the nuclear corrosion field, with an opening on to the world.
- To initiate and stimulate opportunities of exchange of scientific and technical subjects related to nuclear corrosion, particularly on today's main nuclear research areas (waste systems, water reactors, generation IV and fusion reactors).
- To promote corrosion science and technical developments through events such as seminars, workshops, publications, etc.

S. Ritter proposed that the Jury for the 2019 Coriou Award would consist of the Chair, Vice-Chair, the 2018 Coriou winner (G. Pinard Legry), Damien Féron (EFC past president) and Christina Lilja (SKB; she served already in 2018 as Jury member). In case G. Pinard Legry would not be willing to act as Jury member, S. Ritter would nominate a suitable replacement. The assembly approved this proposal.

D. Féron proposed that in 2020, when the annual meeting of the ICG-EAC (International Cooperative Group on Environmentally-Assisted Cracking of Water Reactor Materials) will take place in Europe, two medals could be awarded: the “regular” one and one at the ICG-EAC meeting to one of its members. The idea was well received and the final decision will be made during the 2019 Fall Meeting. The discussion then shifted towards the selection criteria for the Coriou Medal: it was mentioned that it is given to exceptionally recognized experts or groups in the field of nuclear corrosion and that also younger persons, who are not yet in the retirement age, should be considered (for those the Award might still have a small impact on their career). It was also added that not only Europeans can be selected as winners.

5. EFC WP4 publications

On behalf of the EFC WP4, two special issues were published in the "Corrosion engineering, science and technology" journal:

- LongTermCorr 2016: published online on August 23, 'open access' in: Corrosion Engineering, Science and Technology, 2017, Vol. 52, No. S1, 1, <https://doi.org/10.1080/1478422X.2017.1344415>
- Special issue on 'Corrosion of Nuclear Materials', consisting of 8 papers from the Nuclear Corrosion sessions of EUROCORR 2015 & 2016 in: Corrosion Engineering Science and Technology, 2017, Vol. 52, No. 8, <https://doi.org/10.1080/1478422X.2017.1388591> + 1 paper in CEST, 2018, Vol. 53, No. 1 (by D. Tice)

An EFC "green book" based on the 50 years WP4 anniversary workshop (held during EUROCORR 2017) is under preparation. If all the chapters could be finalized before February 2019, the book could be issued before EUROCORR 2019.

S. Ritter asked for other suggestions for any publications, but no comment or ideas were received.

6. EFC WP4 past events

S. Ritter looked back to EUROCORR/ICC 2017, where WP4 organized the 50 years WP4 anniversary workshop in which nine very interesting lectures were given, covering most aspects of nuclear corrosion:

- General overview/history, D. Féron (CEA)
- EAC in stainless steels, U. Ehrnstén (VTT)
- EAC in Ni-base alloys, D. Gomez-Briceno (Ciemat)
- EAC of C & LAS, H.P. Seifert (PSI)
- Cu behaviour in nuclear waste disposal, H. Hänninen (Aalto Uni.)
- Modelling of corrosion in nuclear waste containers, C. Padovani (Wood)
- FAC in PWRs, S. Trevin
- Corrosion in Zr alloys, M. Preuss (Uni. Manchester)
- Corrosion in supercritical water reactors, R. Novotny (JRC)

7. EFC WP4 future events (other than EUROCORRs)

Other WP4 co-organized future events dedicated to corrosion and nuclear systems were presented:

- A winter school dedicated to "Modelling of corrosion" (not only nuclear corrosion) is organized by CEA (D. Féron, C. Meis, L. Martinelli) on January 28 – February 1, 2019. Deadline for registration is November 30. The location will be France at CEA-Saclay (close to Paris).
- The 2nd edition of the Nuclear Corrosion Summer School 'NuCoSS-19' will be co-organized by WP4 in co-operation with the H2020 project MEACTOS. The date is July 7 – 12, 2019 (the 1st edition was in 2015). It will take place in Slovenia, similar to the 1st edition, but in a different area (close to Kranjska Gora).
- A workshop is organized by D. Féron (et al.): 7th Int. WS on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems (LTC 2019), in November 19 – 21, 2019, in Nancy, France. Proceedings will be published in CEST or in a green book.

S. Ritter proudly announced that the EFC is sponsoring three student grants, worth 2000.- € (in total), for NuCoSS-19. Students can apply for those grants via the NuCoSS-19 website until January 31, 2019.

8. EUROCORRs

S. Ritter summarized some facts of EUROCORR 2018. He underlined the very reasonable number of attendees during the many nuclear corrosion (sub-)sessions (25 – 50 persons) and the very good level of presentations constituted of 38 oral presentations and 4 posters.

Then S. Ritter went over to future EUROCORRs:

- EUROCORR 2019, September 9 – 13, 2019, Seville, Spain: So far “only” the regular nuclear corrosion session is planned. S. Ritter asked all to propose ideas for a special session/workshop (e.g., on EAF, Gen IV, etc.). Ideas for proposals will still be accepted until early October. S. Ritter promised to ask the H2020 INCEFA+ project leader if they might be interested (*update: no interest*).
- EUROCORR 2020, September 6 – 10, 2020, Brussels, Belgium: There will be the regular nuclear corrosion session and a workshop on EAC initiation in co-operation with the MEACTOS H2020 project and WP5 (Environment Sensitive Fracture).
- EUROCORR 2021, September 19 – 23, 2021, Budapest, Hungary.

9. Any other business

S. Ritter presented the WP4 website: www.efcweb.org/WP4 and reminded people to pass by there from time to time to get the latest information and news on WP4 activities. In this context D. Féron announced that the whole EFC website will be modernized probably in 2019, including some social media presence. Quite some discussions occur on this topic.

Thereafter some WP4-related H2020 EU-projects were mentioned:

- MEACTOS (www.meactos.eu)
- INCEFA+ (www.incefaplus.unican.es)
- SOTERIA (www.soteria-project.eu)

S. Ritter announced that there is no WP4 spring meeting planned and that the next meeting will be the fall meeting in Sevilla during EUROCORR 2019.

Finally he informed that there is a possibility of asking for some money from the EFC to support WP4 activities (e.g., WP meetings, grants, etc.). Any ideas are very welcome!

10. Closure

As no other point was raised, the meeting was closed. S. Ritter thanked the assembly for attending the meeting and for their support of the WP4 activities. Again he animated the audience to further participate in the WP4 activities and to send any wishes, suggestions or ideas to the Chair or Vice-Chair.

Fall Business Meeting of the EFC Working Party 4 'Nuclear Corrosion'

September 12, 2018, 14:40 – 15:40

Meeting Room 2.1, Krakow Congress Centre,
Krakow, Poland

Agenda

- 1) Opening of the meeting, apologies for absences, approval of the agenda,
- 2) EFC WP4 prize award ceremony
- 3) Approval of the minutes of the 2017 Fall Meeting (in Prague)
- 4) EFC WP4 internal matters
- 5) EFC WP4 publications
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- 9) Any other business (website, next meeting, EU-projects, etc.)
- 10) Closure

1) Opening

- Welcome
- Appologies received from:
Catherine Guerre (CEA), Renate Kilian (Framatome GmbH), Jan Macak (UCT Prague), Hans-Peter Seifert (PSI), Séverine De Vroey (Engie), Walter Bogaerts (KU Leuven), Stuart Lyon (Univ. Manchester)
- Attendies:
(UCT Prague), (UCT Prague), (ANDRA), Hannu Hänninen (Aalto Univ.), (CEA), (CEA), (CEA), Bojan Zajec (ZAG), Michael Lowden (Rolls-Royce), (UCT Prague), Damien Féron (CEA), Laure Martinelli (CEA), Sophie Bosonnet (CEA), Michel Schlegel (CEA), Stefan Ritter (PSI)
- Approval of the meeting agenda

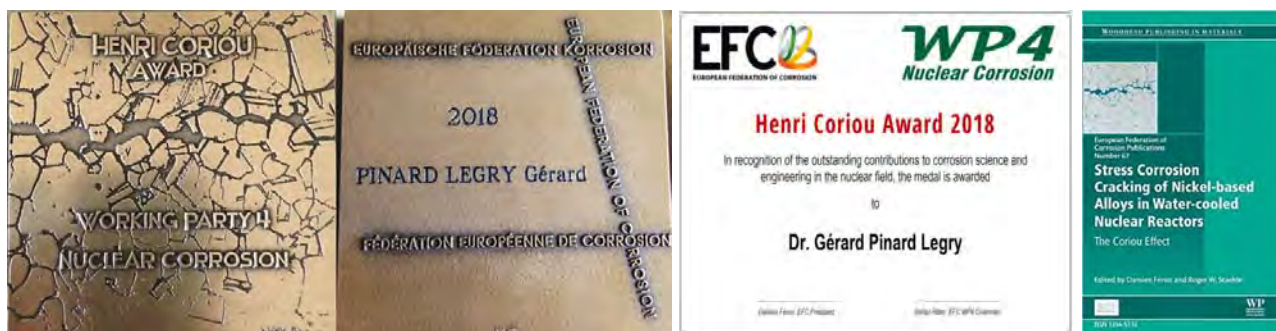
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2) 2018 Coriou Award

- The Jury has selected **Dr. Gérard Pinard Legry** in recognition of the outstanding contributions to corrosion science and engineering in the nuclear field. The medal will be awarded at the CEFACOR General Assembly on September 21 by Damien.



The sponsoring of the medal by CEA is gratefully acknowledged!

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2) Oral & poster prize ceremony

- Best oral presentation award 2018 (in recognition of the excellence of the contribution to the oral sessions of the WP4):



- Best poster presentation award 2018 (in recognition of the excellence of the contribution to the poster session of the WP4):



The sponsoring of the prizes by Cormet & CEA is gratefully acknowledged!



Oral prize winner 2018

Kamila Wilczynska,
CEA & INP Grenoble,
France

Simulation of C-Ring, O-Ring and tensile ring specimens for Iodine induced SCC experiments on zirconium alloy

Simulation of C-Ring, O-Ring and tensile ring specimens for Iodine induced Stress Corrosion Cracking experiments on zirconium alloy

Kamila WILCZYNSKA^{1,2}, Matthew BONO¹, David LE BOULCH¹, Marion FREGONESE³, Valérie CHABRETOU⁴, Nathanael MOZZANI⁵, Martin RAUTENBERG⁶

¹CEA-DEN, Service d'Études des Matériaux Irradiés, CEA, Université Paris-Saclay, F-91191, Gif-sur-Yvette Cedex, France

²INP Grenoble, 38031 Grenoble, France

³INSA de Lyon, 21 avenue Jean Capelle, 69621 Villeurbanne Cedex, France

⁴FRAMATOME 10 rue Juliette Récamier, 69456 Lyon, France

⁵EDF R&D, EDF Lab les Renardières, Avenue des Renardières – Écuellles, 77250 Moret sur Loing-Orvanne, France

⁶EDF DIPNN, 19 rue Pierre Bourdeix, 69363 Lyon, France

Abstract:

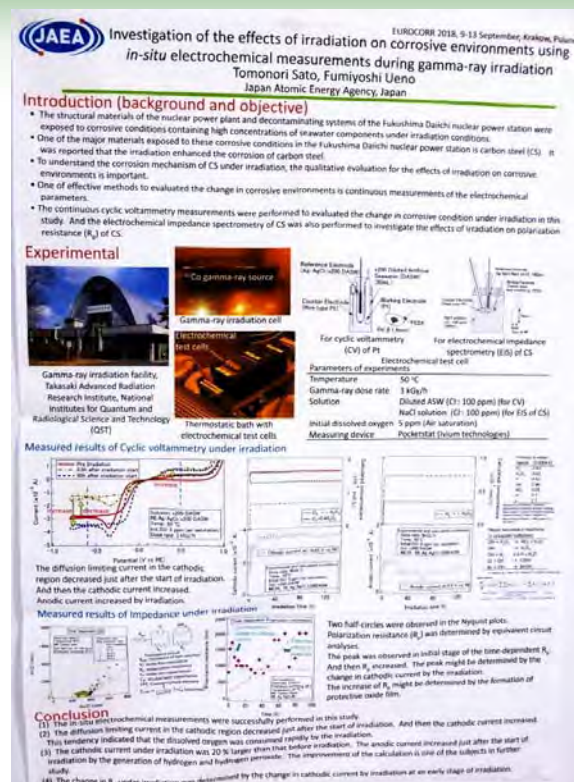
Iodine-induced stress corrosion cracking (ISCC) is a failure mechanism that can occur in nuclear fuel cladding as a result of Pellet Cladding Interaction (PCI) during incidental power transients in the reactor. This work presents an assessment of the feasibility of C-Ring, O-Ring and tensile ring specimens for ISCC experiments. The study is performed with the CAST3M finite element code, which uses viscoplasticity models developed for cold worked stress-relieved (CWSR) Zircaloy-4 fuel cladding at French Alternative Energies and Atomic Energy Commission (CEA) in order to calculate the stresses and strains in the specimens for specific types of mechanical loading. The calculated stresses and strains are subsequently used in a model that predicts the damage that occurs in the material due to stress

Poster prize winner 2018

Tomonori Sato

Japan Atomic Energy Agency,
Japan

Investigation of the effects of
irradiation on corrosive
environments using in-situ
electrochemical measurements
during gamma-ray irradiation



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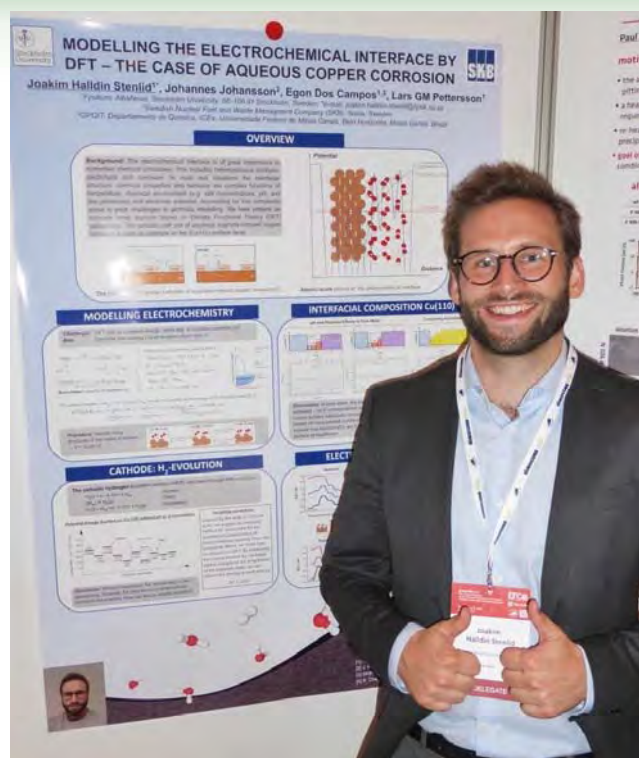
Poster «special prize»

Joakim Halldin Stenlid

Fysikum, Stockholm University,
Sweden

Modelling the electrochemical
interface by DFT – The case of
aqueous copper corrosion

Remark: Top 5 poster for the EFC
poster prize competition!



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3) Approval of the minutes of the 2017 Fall Meeting (in Prague)

- Approval? → [2017 minutes](#)

4) EFC WP4 internal matters

- Members and “friends”

Please check or add your name/address on the attendee list!

- WP4 objectives 2018 – 2020 (*approved in 2017*):
 - To provide links between European teams and EU-funded programs in the nuclear corrosion field, with an opening on to the world.
 - To initiate and stimulate opportunities of exchange of scientific and technical subjects related to nuclear corrosion, particularly on today's main nuclear research areas (waste systems, water reactors, generation IV and fusion reactors).
 - To promote corrosion science and technical developments through events such as seminars, workshops, publications, etc.

4) EFC WP4 internal matters (cont'd)

- WP4 awards:
 - No adjustment of the rules? (→ [Oral](#) → [Poster](#) → [Coriou](#))
 - Jury for the 2018 Henri Coriou Award: Chair, Vice-Chair, 2017 winner (H. Hänninen), Ch. Lilja, D. Féron
 - Jury for the 2018 poster prize: L. Martinelli, D. Engelberg, C. Örnek (Young EFC)
 - Jury for the 2018 oral prize: Chair, Vice-Chair, M. Lowden, R. Rebak, F. Martin
 - Jury for the **2019** Henri Coriou Award: Chair, Vice-Chair, 2018 winner (Legry?), **2 more?**
 - **Please nominate candidates (persons or groups)** for the 2019 Henri Coriou Award until February 28!

5) EFC WP4 publications



- Books & special issues published or under publication:
 - Special issue on 'Corrosion of Nuclear Materials', consisting of 8 papers from the Nuclear Corrosion sessions of EUROCORR 2015 & 2016 in: Corrosion Engineering Science and Technology, 2017, Vol. 52, No. 8, <https://doi.org/10.1080/1478422X.2017.1388591>
+ 1 paper in CEST, 2018, Vol. 53, No. 1 (by D. Tice)
 - LongTermCorr 2016: published online on August 23, '**open access**' in: Corrosion Engineering, Science and Technology, 2017, Vol. 52, No. S1, 1, <https://doi.org/10.1080/1478422X.2017.1344415>
- Future publications:
 - EFC Green Book based on the 50 years WP4 anniversary WS
 - Any other suggestions, ideas?

5) EFC WP4 publications (cont'd)

EFC 'Green Book': 50 Years of (EFC Working Party) Nuclear Corrosion – a Review

Status: Chapters are (slowly) coming in for review. Publication expected in mid-2019.

Preliminary content:

1. Fifty years of nuclear corrosion: from a pioneer period to a mature industry and science, Damien Féron, CEA, France
2. Environmentally-assisted cracking of stainless steels in LWRs, Ulla Ehrnstén, VTT, Finland
3. Irradiation-assisted stress corrosion cracking in LWRs, Gary Was, University of Michigan, USA
4. Environmentally-assisted cracking of nickel-base alloys in LWRs, Lola Gomez Briceno, CIEMAT, Spain
5. Environmentally-assisted cracking of carbon and low-alloy steels in LWRs, Hans-Peter Seifert, PSI, Switzerland
6. Corrosion of Zirconium alloys in LWRs – effect of Sn, Michael Preuss, University of Manchester, UK
7. Microbiological-induced corrosion in nuclear power plants – an underestimated interactive material and environment process, Renate Kilian, Framatome GmbH, Germany
8. Flow-accelerated corrosion in PWR secondary circuits, Stéphane Trevin, EdF, France
9. Corrosion issues for spent nuclear fuel reprocessing, Pierre Laghoutaris, N. Gruet, B. Gwinner, R. Robin, F. Balbaud, P. Fauvet, CEA, France
10. Corrosion of radioactive waste containers, Cristiano Padovani, Wood plc
11. The corrosion of radioactive waste disposal canisters based on in-situ tests, Nikitas Diomidis, NAGRA, Switzerland & Fraser King, Integrity Corrosion Consulting, Canada
12. Copper behaviour in geological nuclear waste disposals, Hannu Hänninen, Aalto University, Finland
13. Corrosion issues in supercritical water-cooled reactors, Radek Novotny, Joint Research Centre Petten, The Netherlands
14. Corrosion issues of structural materials by liquid metals in fusion, fission and spallation reactors, Damien Féron, Jean-Louis Courouau, CEA, France



6) EFC WP4 past events

- 50 year WP4 anniversary workshop during EUROCORR/ICC 2017

9 very interesting lectures covering many aspects of nuclear corrosion:

- General overview/history, D. Féron (CEA)
- EAC in stainless steels, U. Ehrnstén (VTT)
- EAC in Ni-base alloys, D. Gomez-Briceno (Ciemat)
- EAC of C & LAS, H.P. Seifert (PSI)
- Cu behaviour in nuclear waste disposal, H. Hänninen (Aalto Uni.)
- Modelling of corrosion in nuclear waste containers, C. Padovani (AMEC FW)
- FAC in PWRs, S. Trevin
- Corrosion in Zr alloys, M. Preuss (Uni. Manchester)
- Corrosion in supercritical water reactors, R. Novotny (JRC)
- (MIC, R. Kilian (AREVA GmbH), *had to cancel due to sickness*)
- (Corrosion in reprocessing, R. Robin (CEA) *cancelled*)



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7) EFC WP4 future events (other than EUROCORRs)

- Winter School on “Modelling of Corrosion”,
January 28 – February 1, 2019, CEA-Saclay, France → [Laure](#)
- 2nd edition of the Nuclear Corrosion Summer School ‘NuCoSS-19’,
July 7 – 12, 2019, (close to) Kranjska Gora, Slovenia → [Bojan](#)
- 7th Int. WS on Long-Term Prediction of Corrosion Damage in Nuclear
Waste Systems (LTC 2019),
November 19 – 21, 2019, Nancy, France → [Damien](#)
- Other events:
– ?

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7) Winter School on Modelling of Corrosion

- Winter School on “**Modelling of Corrosion**” : CEA Saclay (close to Paris) January 28th - February 1st, 2019 **Registration deadline: November 30th, 2018**

European Federation of Corrosion: Courses in Corrosion and related areas

- Corrosion Mechanisms
- Overview on Phase and Pourbaix Diagrams
- Atomistic modelling of corrosion
- Modelling of Corrosion by Cellular Automata
- Point Defect Model
- DPCM Model
- High temperature oxidation
- Corrosion data mining & neuronal network
- Localized Corrosion
- Flow accelerated Corrosion
- Rebar corrosion modeling
- Stress Corrosion Cracking
- Modelling of Inter-granular Corrosion
- Atmospheric Corrosion
- Cathodic Protection
- Corrosion Modelling and Safety Management
- Multiscale Contribution on Corrosion Prediction

- D. FERON, CEA-DEN, Saclay, France
- C. GUENEAU, CEA – DEN, Saclay, France
- B. DIAWARA, ENSCP Chime ParisTech, France
- L. VAN BRUTZEL & A. CHARTIER, CEA-DEN, Saclay
- D. DI CAPRIO, ENSCP Chime ParisTech, France
- D. MACDONALD, University of California Berkeley, USA
- C. BATAILLON, CEA-DEN, Saclay, France
- C. DESGRANGES, L. MARTINELLI, CEA-DEN, Saclay
- M. URQUIDI-MACDONALD, Penn State University, USA
- R. OLTRA, Université de Bourgogne, France
- S. TREVIN & E. GIPON, EDF, France
- V. L'HOSTIS, CEA-DEN, Saclay, France
- T. COUVANT, EDF, France
- B. GWINNER, CEA-DEN, Saclay, France
- J. DE LAMARRE, CEA - DEN, Saclay
- A-M GROLLEAU, Naval Group, France
- Y. WATANABE, Tohoku University, Japan
- D. FERON, CEA-DEN, Saclay, France

Computer Sessions using relevant software:

- Atomistic modelling of Corrosion - oxidation
- Localized Corrosion
- EKINOX model
- DPCM Model
- Point Defect Model
- BRT-CICERO (FAC code)

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LTC 2019

NANCY, France

November 19-21, 2019

First Circular

7th International Workshop
on Long-term Prediction of
Corrosion Damage in
Nuclear Waste Systems

Organised by: **CEFRACOR**

Sponsors:



Supported by:



EFC event N°443

Program

The scope of the program will cover all areas related to the corrosion behaviour of materials in nuclear waste storage and disposal facilities, including:

- National programs
- LLW and HLW/SF containers
- Storage and disposal
- Experimental studies
- Lifetime predictions and performance assessment
- Large-scale tests
- Archaeological analogs
- Regulatory perspectives

The technical program will consist of oral presentations and poster sessions.

Abstracts

Abstracts (maximum 2 pages, including figures and references) should be submitted via the conference website.

A template for the submission of abstracts is available on the website.

Submissions from students are particularly welcome and there will be a prize for the best student poster.



Proceedings

The workshop proceedings will be published after the meeting. Details about submission of papers, the review process, etc. will appear on the website.

Venue NANCY, France



Travel

Nancy is located on a crossroads, which connects to Paris, Strasbourg, Brussels and Lyon, and is easily accessible by car, train, plane, coach... and even boat!

Nancy is located at 1h30 from Paris by TGV (rapid trains)

Information on transportation and accommodation in Nancy are provided on the website.

Those who will require travel visas to enter France should request a letter of invitation and allow sufficient time for visa processing. Details are provided on the website.

Scientific and Organizing Committee

International members

AHN Tea, U.S. NRC, USA (to be confirmed)
DIOMIDIS Nikitas, NAGRA, Switzerland
DRUYST Frank, SCK-CEN, Belgium
HAN En-Hou, IMR, China,
KEECH Peter, NWMO, Canada
KOBAYASHI Masato, RWMFRC, Japan
LILJA Christina, SKB, Sweden,
MACDONALD Digby, U.C. Berkley, USA
PADOVANI Cristiano, Wood, UK

French members

CRUSSET Didier, Andra
DEYDIER Valérie, Andra
NECIB Sophia, Andra
FERON Damien, CEA
MARCUS Philippe, CEFRACOR & ENSCP
LANARDE Lise, CEFRACOR

Technical Tour

Two visits of the Bure underground laboratory of Andra are planned before and after the workshop: Monday, November 18 and Friday, November 22. The number of visitors is limited to 27 persons for each visit.

Registration

The early-bird registration fee is 650€ (750€ after July 2019), 325€ for students (350€ after July 2019), VAT included.

Registration includes access to all sessions, daily lunches & coffee breaks, the workshop dinner and the technical tour (limited number of places)

Payment details are on the website.

Key Dates

Website launch	October 2018
Abstract submission	January 2019
Abstract submission closed	May 2019
Author notification	July 2019
Early-bird deadline for registration	July 2019
Workshop	November 19-21 2019
Papers for the proceedings	February 2020

Website

For all details go to www.cefracor.org
(Workshop website launched October 2018)

Contacts

Enquiries Related to Technical Issues

Damien FERON, CEA
damien.feron@cea.fr

Valérie DEYDIER & Sophia NECIB, Andra
valerie.deydier@andra.fr
sophia.necib@andra.fr

Enquiries Related to Registration, Travel & Accommodation

Lise LANARDE, CEFRACOR
secretairegeneral@cefracor.org



8) EUROCORRs

- EUROCORR 2018
 - Excellent Nuclear Corrosion session: 38 oral presentations + 3 posters (= 41 presentations in total)
 - Sessions were running smoothly and were reasonably well attended (25 – 50 persons)
- EUROCORR 2019, September 9 – 13, 2019, Seville, Spain
 - Regular nuclear corrosion session
 - Special session/workshop? (EAF, Gen IV, etc.?)
- EUROCORR 2020, September 6 – 10, 2020, Brussels
 - Regular nuclear corrosion session
 - Workshop on EAC initiation in cooperation with MEACTOS (H2020 project) & WP5
- EUROCORR 2021, September 19 – 23, 2021, Budapest, Hungary
 - Regular nuclear corrosion session

9) Any other business

- WP4 website → www.efcweb.org/WP4
- Related H2020 EU-projects:
 - MEACTOS (www.meactos.eu)
 - INCEFA+ (www.incefaplus.unican.es)
 - SOTERIA (www.soteria-project.eu)
- Next WP4 meeting:
 - Fall meeting during EUROCORR 2019
 - Spring meeting?
- We could apply for small financial support from the EFC (e.g., for WP meetings, grants, etc.)
- Anything else?



10) Closure

Thank you for attending and for your support!

Any ideas, suggestions or contributions are very welcome! Please contact Stefan (stefan.ritter@psi.ch) or Laure (laure.martinelli@cea.fr).

Hope to see you in Seville next year!

Nuclear Corrosion Summer School – NuCoSS-19

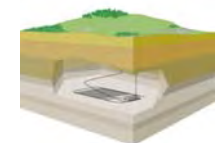
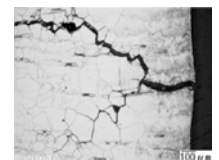
July 7th – 12th, 2019

Gozd Martuljek, Slovenia



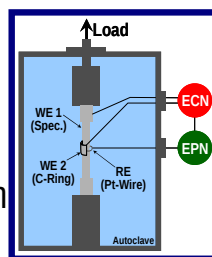
Background & objectives

- Corrosion of nuclear materials is a major issue for plant safety as well as for operation and economic competitiveness. Understanding these corrosion mechanisms, the systems and materials they affect, and the methods to accurately measure their incidence is of critical importance to the nuclear industry
- The summer school is primarily intended for people from nuclear authorities, industry and research organisations who would like **to get a comprehensive overview on the field of nuclear corrosion**. The programme is designed in a way that **networking and a knowledge transfer from experienced experts to the “young generation” is facilitated.**



Lecturers & topics (preliminary)

- All necessary topics will be covered, starting with fundamental electrochemistry, to provide a self-consistent understanding of nuclear corrosion issues.
- Internationally renowned experts (e.g., D. Féron, F. Scenini, D. Engelberg, R. Kilian, H.P. Seifert, R.-W. Bosch, P. Efsing, J. Noël, S. Ritter, etc.) will give lectures on the following topics:
 - Electrochemistry and corrosion
 - Overview on corrosion in the nuclear cycle
 - Corrosion in light water reactor plants (incl. monitoring & mitigation aspects and a focus on environmentally-assisted cracking)
 - Corrosion in nuclear waste disposals
 - Corrosion in Gen IV systems
 - Case studies and ageing management
 - Advanced technologies to characterize corrosion
 - and many more.....



Practicalities

- All-inclusive summer school. The moderate fee will cover:
 - accommodation in the hotel (3* / 4*)
 - all meals & coffee breaks
 - one social event
 - attendance to lectures & USB-stick & certificate of attendance
- Fee for students: <1000.- €
- Schedule: morning session, lunch, free afternoon, dinner, evening session
- Location: Hotel Špik (4* & 3*), in alpine part of Slovenia
 - free access to: outdorr & indoor pools (spa), saunas, wellness, volleyball & tennis court
 - easy access from Ljubljana intl. airport (taxi, shuttle, bus)
 - few km to Kranjska Gora alpine/ski resort
- ~~Organized various sport & leisure activities for free afternoon~~

Practicalities

- free afternoon activities offered (transport incl.):

Sports

- hiking
- cycling
- rafting
-



Tourist activities

- sightseeing
- visits to places of interest
- etc.

Short courses of Old & Traditional Slovenian arts & crafts

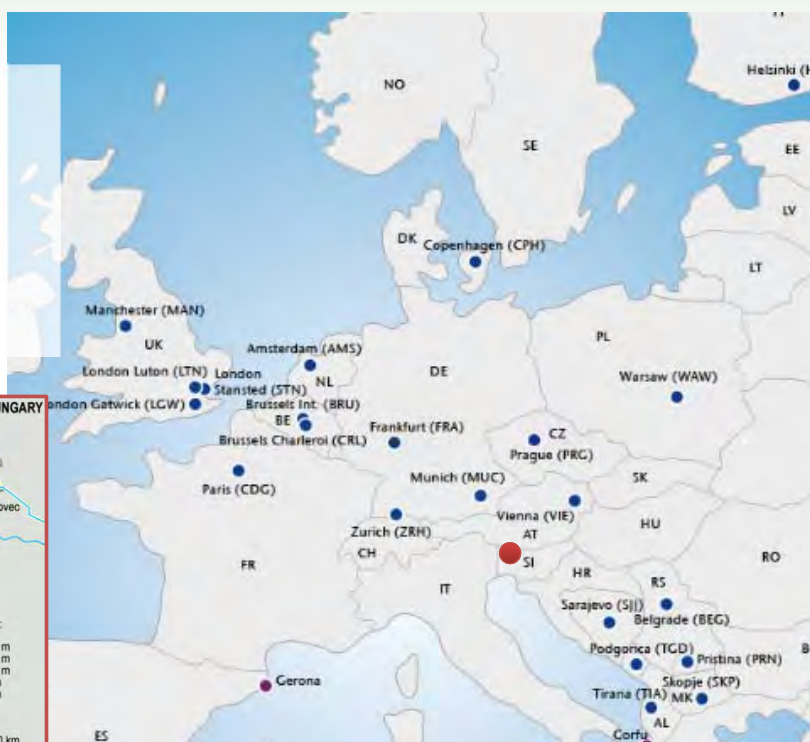
- lace making
- lectar (gingerbread) heart making
- bread baking
- etc.



and plenty of opportunity for relaxing and leisure...

Location & accessibility

- Hotel Špik, Gozd Martuljek, Slovenia
- Ljubljana international airport
 - several flights per day to main EU hubs
 - Adria, easyJet, WizzAir, FinnAir,



Organisation

co-organized by the European Federation of Corrosion (event no. 440)
and the Horizon 2020 project MEACTOS



Main organizers:



ZAVOD ZA
GRADNENIŠTVO
SLOVENIJE

SLOVENIAN
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AND CIVIL ENGINEERING
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