

Minutes

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

September 10, 2020, 14:05 – 15:05

'Web/video'

Written by:

Laure Martinelli and Stefan Ritter

Diffusion:

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

Attendees (19):

R.-W. Bosch (SCK CEN), T. Cernousek (CVR), D. Engelberg (Univ. of Manchester), D. Féron (CEA), C. Guerre (CEA), J. Hesketh (Jacobs), I. Honndorf (EFC), D. Kumar (Univ. of Bristol), B. Kursten (SCK CEN), C. Lilja (SKB), M. Lowden (Rolls-Royce), L. Martinelli (CEA), Z. Que (VTT), R. Rebak (GE-GRC), S. Ritter (PSI), M. Schlegel (CEA), V. Tsisar (SCK CEN), K. Wilczynska (CEA), B. Zajec (ZAG)

Apologies for absence received from:

R. Kilian (Framatome GmbH), H.-P. Seifert (PSI)

Agenda:

- 1) Opening of the meeting, apologies for absences, approval of the agenda
- 2) EFC WP4 prize award ceremony (poster prize)
- 3) Approval of the minutes of the 2019 Fall Meeting (in Seville)
- 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

Appendix:

Appendix 1) Meeting slides presented by S. Ritter*

Appendix 2) 7th LTC 2019 slides presented by D. Féron*

Appendix 3) Special issue slides presented by S. Ritter*

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

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

S. Ritter opened the Fall Meeting and thanked the audience for joining in via Zoom. He underlined the particularity of this year marked by the Covid-19 virus that forced the WP4 meeting to be virtual. The agenda was presented and has been approved (see above).

2. EFC WP4 prize award ceremony

The ceremony began with some explanation of the special situation this year. Because this year no papers were submitted, (too) many young scientists (below 35 years) would have been eligible for the oral prize (24 candidates). This, together with the fact that all talks are taking place online and the quality might depend on the speed of the internet connection or quality of the microphone, it was decided not to award the oral prize in this year. Only the poster prize was given (all five nuclear corrosion posters were eligible).

This prize consisted of two excellent books on nuclear corrosion: One was kindly sponsored by CEA ('Nuclear corrosion science and engineering', Ed. D. Féron) and one by Elsevier ('Nuclear corrosion: research, progress and challenges', EFC No.69, Ed. S. Ritter). The best poster presentation award has been attributed to Ulrich Harm (Technische Universität Dresden, Germany) for his poster on the "Electrochemical corrosion studies on zinc in boric acid containing electrolytes". He apologized in advance that he is not able to join the WP4 meeting (the books will be shipped to him during the next weeks).

WP4's honorary award, the Henri Coriou Medal, that is given every year to an expert, recognized in the nuclear corrosion field, has also been awarded this year. A jury, composed of the Chairman, the 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), was selecting the recipient from the nominees. In 2020, Ulla Ehrnstén (VTT, Finland) has been awarded and the medal has been handed over to her (physically!) by S. Ritter during his vacations last July in Finland. A book (“Stress corrosion cracking of Ni-based alloys in water cooled reactors – the Coriou effects”) and the diploma are currently on their way to Finland. The sponsorship of the medal and book by CEA has been gratefully acknowledged.

3. Approval of the minutes of the 2019 Fall Meeting in Seville

No comments were received and no corrections have been asked for. Therefore, the 2019 minutes were approved by all.

4. EFC WP4 internal matters

S. Ritter showed the renewed website of the WP4 by sharing his computer screen.

Then he informed the participants of the objectives of the WP4 and that the members of the WP include the delegates nominated by the member societies of the EFC and individuals nominated by the Chairman. Those who are interested in the activities of the WP but not member of an EFC member society are called ‘Friends’. D. Féron recalled that people who currently have no national EFC member society (like our colleagues in Finland) can create a local branch (information about it can be found via the website of the EFC).

S. Ritter then came back to the suggested WP4 objectives for the 2021-2023 period, which need to be approved by the members now. These objectives are the same as those of the 2018-2020 period, that were 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.

As no comments were received, these objectives were regarded as approved.

Then S. Ritter asked if any changes to the WP4 prize rules are needed, which was not the case.

He introduced the composition of the Juries of the poster prize and Coriou award for this year (see slide 9 in Annex 1) and proposed the Jury composition for next year's Coriou award: Chair, Vice-Chair, D. Féron (EFC past president, WCO president), the 2020 winner (U. Ehrnstén) and Ch. Lilja. The meeting attendees silently approved the proposed persons. S. Ritter recalled that all members and friends can nominate candidates (persons or groups) for the 2021 Henri Coriou Award until February 28.

5. EFC WP4 publications

The EFC “green book” based on the 50 years WP4 anniversary has finally been published: Woodhead Publishing, August 2020, 497 pages, ISBN: 978-0-12-823719-9.

Then S. Ritter explained that it was planned to publish the best papers from this year's joint session (EAC initiation) as a special issue in the CEST journal, but that now due to the virtual format only seven presentations without full papers were finally taking place. After some discussion, it was decided to proceed as planned and to ask the authors (plus some additional ones) if they would be able and willing to contribute papers to this special issue. If a sufficient number of good papers (>7) can be collected, the special issue would be realized.

S. Ritter, on behalf of B. Normand, informed on the creation of a special issue on 'Corrosion and Materials Degradation under Irradiation: From Understanding to Mitigation' in the 'Corrosion and Materials Degradation' open access journal. If people are interested to contribute, they can contact B. Normand.

The proceedings of the LTC 2019 WS will be published as a special issue in the Materials and Corrosion journal.

If anyone has ideas for other publications, the WP chairman is happy to support such actions.

6. EFC WP4 past events

Since the last EUROCORR, two WP4 co-organised events took place:

- D. Féron presented a report (see slides in Annex 2) about the 7th Int. WS on 'Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems (LTC 2019)' that occurred on November 19 – 21, 2019, in Nancy, France. He also explained that Bruno Kursten (SCK CEN) was proposed as new Chairman of the International Scientific Committee of this workshops series and that this nomination needs the approval of the WP4. Thereafter, this nomination, as well as the location of the next edition in 2022 (Switzerland) has been approved by the WP4.
- S. Ritter spoke about the first Nuclear Corrosion Web-Seminar that occurred on June 30, 2020. Four interesting talks were given and it was a success, as approximately 80 participants attended this first virtual seminar of the WP.

7. EFC WP 4 future events (other than EUROCORRs)

S. Ritter listed some future events which are co-organized by the WP4:

- S. Ritter suggested to organize a second edition of the Web-Seminar (e.g., around the Corrosion Awareness Day 2021) and asked for topics or contributions. Some positive feedback was received.
- In 2022 the next int. WS on 'Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems – LTC 2022' will be held in Switzerland.
- It was suggested that a third edition of the Nuclear Corrosion Summer School – NuCoSS-23, could be organized in July 2023.

8. EUROCORRs

S. Ritter gave a summary of some facts of the virtual EUROCORR 2020. He underlined the reasonable number of session attendees (22 – 37 persons) and the very good level of presentations constituted by 30 oral presentations, 5 posters and 3 nuclear corrosion-related joint session orals (= 38 presentations), although in the original EUROCORR 2020 in Brussels it would have been an even higher number of presentations (54 orals + 7 posters + 3 nucl. JS orals = 64 presentations). The sessions were running mostly well and it was concluded that it was the right decision to hold a virtual conference instead of waiting one more year without any large European corrosion meeting

(update: the total number of attendees was approx. 650 and the total number of presentations was approx. 400).

Then S. Ritter recalled the future EUROCORRs:

- EUROCORR 2021, September 19 – 23, 2021, Budapest, Hungary: regular nuclear corrosion session and a joint session on 'Corrosion in molten salts and ionic liquids for energy applications' together with WP3.
- EUROCORR 2022, August 28 – September 1, 2022, Berlin, Germany: Regular nuclear corrosion session and eventually a special session on corrosion issues during decommissioning (suggested by T. Yonezawa) and/or a repetition of the joint session on 'EAC initiation'.
- EUROCORR 2023, August 27 – 31, 2023, Brussels, Belgium: Regular nuclear corrosion session; proposals for special sessions are welcome.

9. Any other business

S. Ritter reminded people to check out the new WP4 website: www.efcweb.org/WP4 and the WP4-related EU projects.

He announced that the next WP Fall Meeting will be held during EUROCORR 2021 in Budapest (hopefully 'physically').

Finally he reminded that there is a possibility of requesting some money from the EFC (up to approx. 2000 €) to support WP4 activities (e.g., WP 'extra' meetings, grants, support of young colleagues/students, etc.). Any ideas are very welcome and for 2021 they should be submitted to the Chairman by September 18!

10. Closure

As no other point was raised, the meeting was closed. S. Ritter thanked the participants for attending the meeting even in those difficult 'virtual' times and for their support of the WP4 activities. As always, he emphasised that an active participation in the activities of the WP4 is essential to be able to fulfil its objectives and that any wishes, suggestions or ideas are always welcome.



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

September 10, 2020, 14:00 – 15:00

Web/Video



Agenda

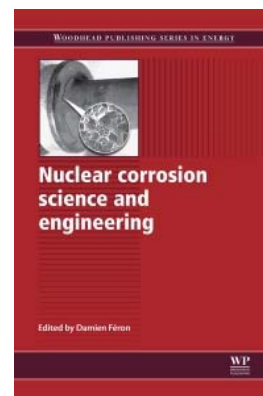
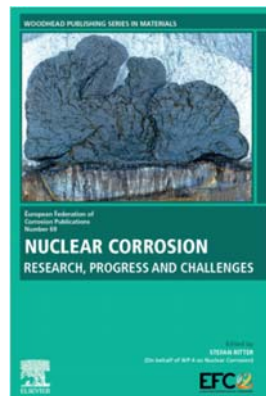
- 1) Opening of the meeting, apologies for absences, approval of the agenda
- 2) EFC WP4 awards ceremony (poster prize)
- 3) Approval of the minutes of the 2019 Fall Meeting (in Seville)
- 4) EFC WP4 internal matters
- 5) EFC WP4 publications
- 6) EFC WP4 past events
- 7) EFC WP4 future events
- 8) EUROCORR's
- 9) Any other business (website, next meeting, EU-projects, etc.)
- 10) Closure

1) Opening

- Welcome
- Appologies received from:
Renate Kilian (Framatome GmbH), Hans-Peter Seifert (PSI)
- Approval of the meeting agenda

2) Poster prize ceremony

- Best poster presentation award 2020 (in recognition of the excellence of the contribution to the poster session of the WP4):



***The sponsoring of the prize by Elsevier
& by CEA is gratefully acknowledged!***



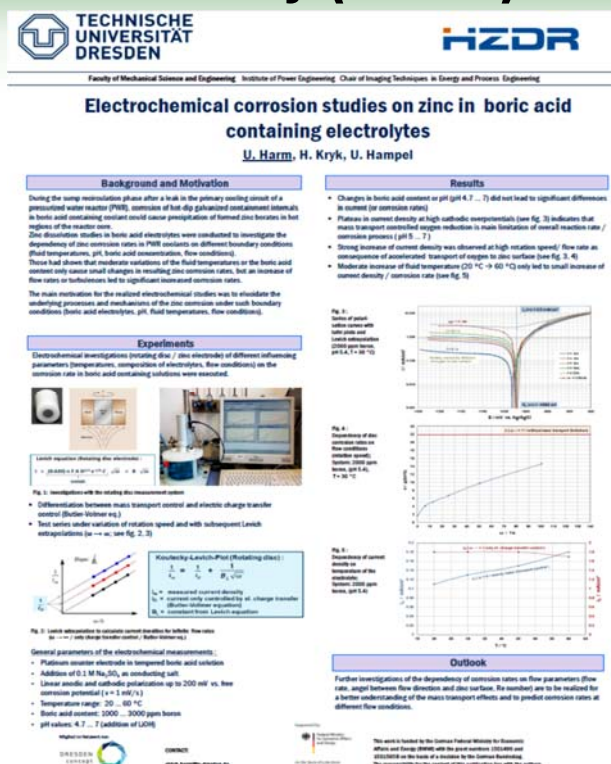
2) Poster prize ceremony (cont'd)

...and the winner of the best poster presentation award 2020 is:

Ulrich Harm

'Electrochemical corrosion studies on zinc in boric acid containing electrolytes'

Co-authors: H. Kryk, U. Hampel
Technische Universität Dresden,
Germany



10 September 2020

EFC-WP4 Fall Meeting 2020

5

2) 2020 Coriou Award

- The Jury has selected **Ulla Ehrnstén (VTT)** in recognition of the outstanding contributions to corrosion science and engineering in the nuclear field.
- The medal has been awarded on July 26, in Finland.



The sponsoring of the medal & book by CEA is gratefully acknowledged!

10 September 2020

EFC-WP4 Fall Meeting 2020

6

3) Approval of the minutes of the 2019 Fall Meeting (in Seville)

- Approval?

4) EFC WP4 internal matters

- Members and “friends”

Please check your name/address on the internal area of the [WP4 website](#)!

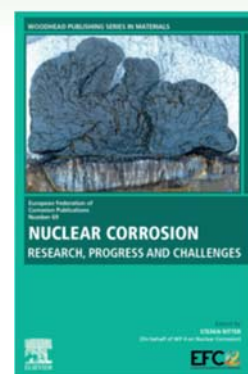
- WP4 objectives 2021 – 2023 (*to be approved now*):
 - To provide links between European teams and EU-funded programs in the nuclear corrosion field, with an opening on to the world.
 - To initiate and stimulate opportunities of exchange of scientific and technical subjects related to nuclear corrosion, 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:
 - Adjustment of the prize rules?
 - → [Oral](#): no change?
 - → [Poster](#): no change?
 - → [Coriou](#): no change?
 - Jury for the 2020 Henri Coriou Award: Chair, Vice-Chair, Ch. Lilja, D. Féron, H.P. Seifert
 - Jury for the 2020 poster prize: D. Féron, M. Lowden, Young EFC (C. Örnek)
 - Jury for the **2021 Henri Coriou Award**: Chair, Vice-Chair, 2020 winner (U. Ehrnstén), Ch. Lilja, D. Féron
 - **Please nominate candidates (persons or groups) for the 2021 Henri Coriou Award until February 28, 2021!**

5) EFC WP4 publications

- Books & special issues published or under publication:
 - EFC Green Book No. 69 based on the 50 years WP4 anniversary WS has been published: Woodhead Publishing, August 2020, 497 pages, ISBN: 978-0-12-823719-9
- Future publications:
 - Special issue on EAC initiation (joint session) in the CEST journal?
 - Any other suggestions, ideas?
 - Special issue on '[Corrosion and Materials Degradation under Irradiation: From Understanding to Mitigation](#)' in Corrosion and Materials Degradation (*not co-organized by WP4*)
(https://www.mdpi.com/journal/cmd/special_issues/Corrosion_Degradation)



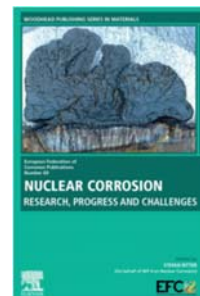
5) EFC WP4 publications (cont'd)

EFC 'Green Book': Nuclear Corrosion: Research, Progress and Challenges

Status: PUBLISHED! Woodhead Publishing, August 2020, 497 pages, ISBN: 978-0-12-823719-9

Content:

1. Fifty years of nuclear corrosion in Europe: evolutions and contributions of the EFC Working Party on Nuclear Corrosion
2. Environmentally-assisted cracking of stainless steels in light water reactors
3. Mechanisms behind irradiation-assisted stress corrosion cracking
4. Environmentally-assisted cracking of nickel-base alloys in light water reactors
5. Environmentally-assisted cracking of carbon and low-alloy steels in light water reactors
6. Flow-accelerated corrosion in nuclear power plants
7. Understanding the corrosion processes of fuel cladding in pressurised water reactors
8. Corrosion behaviour of stainless steels in nitric acid in the context of nuclear fuel reprocessing plants
9. The corrosion behaviour of stainless steel in conditions relevant to the storage of intermediate level radioactive waste
10. The corrosion of radioactive waste disposal canisters based on in-situ tests
11. Copper behaviour in geological nuclear waste disposal
12. Material research for the supercritical water-cooled reactor – summary and open issues
13. Corrosion of structural materials by liquid metals used in fusion, fission and spallation



6) EFC WP4 past events

- 7th Int. WS on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems (LTC 2019), November 19 – 21, 2019, Nancy, France → [Report](#)

Approval of the new Chairman and location of the 2022 meeting!

- Nuclear Corrosion Web-Seminar, June 30, 2020: 4 presentations, good attendance (approx. 80 participants)

7) EFC WP 4 future events (other than EUROCORRs)

- How about another nuclear corrosion web-seminar (e.g., around the Corrosion Awareness Day 2021)?
- WS on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems – LTC 2022, in Switzerland
- Nuclear Corrosion Summer School – NuCoSS-23, in July 2023 (*to be confirmed*)
- Other events?

8) EUROCORRs

- EUROCORR 2020 ('virtual')
 - Nuclear Corrosion session: 30 oral presentations + 5 posters + 3 nucl. JS orals = 38 pres. (*originally: 54 orals + 7 posters + 3 nucl. JS orals = 64 pres.*)
 - Sessions were running mostly ok and were well attended (22 – 37 persons)
- EUROCORR 2021, September 19 – 23, 2021, Budapest, Hungary
 - Regular nuclear corrosion session
 - Joint session on 'Corrosion in molten salts and ionic liquids for energy applications' with WP 3
- EUROCORR 2022, Aug. 28 – Sep. 1, 2022, Berlin, Germany
 - Regular nuclear corrosion session + 'Corrosion issues during decommissioning' ? (suggestion by T. Yonezawa) + repetition of 'EAC initiation' ?
- EUROCORR 2023, Aug. 27 – 31, 2023, Brussels, Belgium
 - 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) *finishing soon!*
 - INCEFA-SCALE *starting soon!*
 - SOTERIA (www.soteria-project.eu) *finished!*
- Next WP4 meeting:
 - Fall meeting during EUROCORR 2021
- **We could (should) apply for small financial support from the EFC (e.g., for WP meetings, grants, support of young folks, 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 Budapest next year!



EFC EVENT N° 444
Nancy, France / November 19-21, 2019



Report on the 7th International Workshops on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems

Damien Féron (CEA) and Valérie Deydier (ANDRA)

Fall business meeting of the EFC Working Party 4 « Nuclear Corrosion », September 10, 2020



European Federation of Corrosion - www.efcweb.org



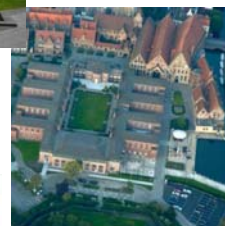
International Workshops on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems - Background



LongTermCorr / LTC workshops founded by Digby Macdonald & Damien Féron

EFC WP4 events

- 2001: Cadarache, France – EFC event N°256
- 2004: Nice, France – session during Eurocorr 2004
- 2007: Penn state University, USA – EFC event N°301
- 2010: Bruges, Belgium – EFC event N°329
- 2013: Asahikawa, Japan - EFC event N°360
- 2016: Toronto, Canada – EFC event N°403
- 2019: Nancy, France – EFC event N°443



Objectives of the LTC workshops

bring together scientists and engineers from various countries, who are developing high level nuclear waste disposal technologies, with the goal of promoting scientific and technical exchanges concerning long term behaviour of metallic containment materials and engineered barrier systems. In particular, the workshop was an opportunity to compare the approaches that are being developed worldwide for predicting long term corrosion phenomena, including corrosion strategies for interim storage and geological disposal. Some of the specific topics of debate included:

- Prediction philosophy: empiricism versus determinism.
- Development of models for predicting the accumulation of corrosion damage in HLNW isolation systems over millennia.
- Specification of the Corrosion Evolutionary Paths from the present state to the performance horizon for various repository concepts in terms of those parameters that significantly impact the accumulation of damage.
- Definition of 'performance', 'failure', and 'containment'.
- Geochemical factors, particularly as related to defining the near-field environment.
- Archaeological artifacts, the information that they contain and their uses.
- Localized corrosion (pitting, crevice corrosion) versus general corrosion.

Journal of Nuclear Materials, 379 (2008)

European Federation of Corrosion - www.efcweb.org

3



LTC 2019

NANCY, France

November 19-21, 2019

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

Monday (18 Nov.)

Visit of the underground laboratory (27 people max.)

Tuesday (18 Nov.):

Session 1 "Nationals programs overview"
Session 2 "Carbon steel"
Poster session

Wednesday (19 Nov.):

Session 2 "Carbon steel"
Session 3 "Copper"
Workshop dinner

Thursday (20 Nov.)

Session 4 "copper, steels, alloys & coatings"
Session 5 "monitoring, modelling & design"

Friday (21 Nov.)

Visit of the underground laboratory (27 people max.)

70 participants from 15 different countries / 38 oral presentations and 24 posters.

Opening by Frédéric Plas, Director
of the R&D division of ANDRA



LTC2019 participants



Gala dinner at the historical
city hall of Nancy



Poster Prices

Jury : Andraz Legat, Delphine Neff, Michel Schlegel, Nick Smart

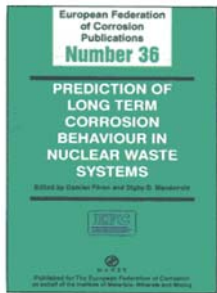
Guillemot Typhaine & al.
« Understanding the carbon
speciation during iron
corrosion in the alkaline anoxic
conditions for safety
assessment of radioactive
waste repositories »



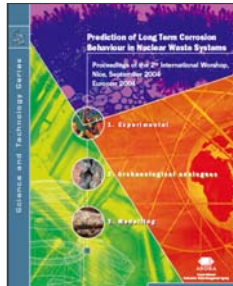
Halldin Stenlid Joakim & al.
« On the cathode reaction for
sulphide-induced copper
corrosion »



Proceedings are published after the workshops to take into account the discussions



EFC Series N°36, published by Maney for EFC, UK, 2002



Science & Technology Series, ANDRA, France 2005



Special issue JNM V.379, N°1-3, Sept. 2008



Special issues CEST
Vol. 46, 2011
Vol. 49, 2014
Vol. 53, 2017
Long term prediction of corrosion damage in nuclear waste systems

- The LTC 2019 oral and poster presentations will published in a special issue of « Materials and Corrosion » after reviewing (around 30-34 papers).
- The special issue is expected at the end of the year.

Materials and Corrosion
Werkstoffe und Korrosion

The International Scientific Committee (ISC) of the International Workshops on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems (LTCs) is composed of:

- Digby MacDonald (U. Berkeley, USA) and Damien Féron (CEA, France) as founders.
- Tae Ahn (US NRC) USA, Valérie Deydier (Andra, France), Nitikas Diomidis (Nagra, Switzerland), Bruno Kusten (SCK-CEN, Belgium), En-Hou Han (IMR, China), Peter Keech (NWMO, Canada), Masato Kobayashi (RWMFC, Japan), Christina Lilja (SKB, Sweden), Cristiano Padovani (Wood, UK).
- Chairman : Damien Féron

The International Scientific Committee (ISC) proposes the location of the next LTC

The International Scientific Committee (ISC) agrees on the scientific content of the workshop

1- Evolution of the International Scientific Committee (ISC) of the International Workshops on Long-Term Prediction of Corrosion Damage in Nuclear Waste Systems:

- If one individual ISC member resigns, he/she may propose a name to replace him.
- The employer of ISC members may also propose a name to replace the member.
- *The European ISC members need to be EFC members (not possible in few countries like Sweden...?)*
- The number of individuals is limited to 12 members.
- The proposed name of new ISC member needs to be approved by 2/3 of the ISC to become ISC member.
- The chairman of the LTC ISC needs to be an EFC Member, assumes the links with EFC WP4, asks for future locations and organisers of the workshops and organises during each workshop a face-to-face meeting of the ISC.
- The chairman of the LTC ISC is proposed by the LTC members and approved by the EFC WP4.
- **Bruno Kursten (SCK-CEN) is proposed as new chairman of the ISC / approval of the WP4 needed**

2- The location and organisers of the next LTC workshop:

- is proposed by the International Scientific Committee (ISC).
- Ideally the decision is taken by the ISC during a current LTC for the next one and unanimously. If there is no unanimity, the decision is taken by the majority of the ISC members.
- The proposal location and organisers are submitted to the EFC WP4 for acceptance.
- If there is no agreement, the ISC is invited to propose a new location and organiser.

3- The LTC workshops are EFC events. The organisers of the future LTC ask for an EFC event number and follow the rules of these events.

Two candidates for LTC 2022: China (Beishan) and Switzerland (Zürich)



Organiser

- Nikitas Diomidis (NAGRA)

Chair of the International Scientific Committee

- Bruno Kursten (SCK-CEN)

Approval of the EFC WP4





ANNEX 3



*corrosion and
materials degradation*

an Open Access Journal by MDPI

Special Issue “Corrosion and Materials Degradation under Irradiation: From Understanding to Mitigation...”

This Special Issue is dedicated to highlighting the complexity of understanding, mastering and developing new knowledge in the field of corrosion under irradiation and the means to control it. The specificity of this mode of degradation does not consist in considering a specific corrosion mode only, but in considering a systemic approach which consists in identifying the synergy effects between the different damage factors. It is therefore not a question of characterizing the maintenance of the structural properties of a material or understanding the type of corrosion involved, but of quantifying the aggravating factor that contributes to the outburst of the degradation phenomenon exacerbated by irradiation.

Guest Editor:

Prof. Dr. Bernard Normand (University of Lyon, France)

Website:

https://www.mdpi.com/journal/cmd/special_issues/Corrosion_Degradation

Submission deadline: 20 March 2021

Contact: cmd@mdpi.com

Agreed Scholars:

1. Prof. Gary Was
2. Prof. Damien Féron
3. Prof. Digby D. Macdonald
4. Prof. Tetsuo Shoji
5. Prof. Yutaka Watanabe
6. Prof. Tom Devine
7. Dr. Fraser King



Corrosion and
Materials
Degradation under
Irradiation: From
Understanding to
Mitigation...

Guest Editor

Prof. Dr. Bernard Normand

Deadline

20 March 2021



Special Issue

Invitation to submit



*corrosion and
materials degradation*

an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Raman Singh, Monash University

Founding Advising Editor

Prof. Dr. Digby Macdonald, University of California at Berkeley

Benefits of publishing in *CMD* are:

- ✓ Open access and **high visibility**
- ✓ Rapid publication

See more at <https://www.mdpi.com/journal/cmd>

Aims and Scope

Corrosion and Materials Degradation aims to focus on corrosion, and science and technology of its mitigation.

- Salient Features of Fundamentals of Corrosion
- Electrochemistry of Corroding Interfaces
- Non-destructive Evaluation of Corrosion
- Corrosion of Body Implants
- Role of Nano- and Microstructure in Corrosion
- Corrosion-assisted Cracking
- Corrosion and Corrosion-assisted Fracture of Aerospace Structures
- Corrosion of Renewable/Modern Energy Systems
- Corrosion of Traditional Energy Systems
- Corrosion of Nuclear Energy Systems
- Corrosion of Light Metals and Alloys
- Corrosion of Weldments
- Corrosion in Petroleum, Oil and Gas Systems
- Corrosion in Water Systems



CMD Editorial Office
St. Alban-Anlage 66
4052, Basel, Switzerland

✉ cmd@mdpi.com
► www.mdpi.com/journal/cmd

