

CLIMATIC RELIABILITY OF ELECTRONICS - CHALLENGES AND PERSPECTIVES

- The 10th International Seminar

3-4 April 2025

Technical University of Denmark (DTU)
Meeting Center - Meeting room M1
Anker Engelunds Vej 1
2800 Kgs. Lyngby
Denmark

Registration deadline: 27 March 2025

About the seminar

Exposure environment caused corrosion failures are dominant today for Power Electronics and other electronic systems due to harsh application environments.

We are organizing this yearly seminar for the last 10 years consecutively with the goal of providing a common platform for discussing various aspects of this multidisciplinary topic with involvement of relevant stakeholders. Every year this seminar attracted many from universities, research institutions, and industries and was a great success with participants from all over the world.

Due to the continued interest and relevance of topic today because of the extensive use of power electronics and other electronics equipment as integral part in many applications such as renewable energy, transportation, and automotive electrification under harsh climatic conditions, we are organizing 10th version of this seminar on 3-4 April 2025.

Topics and program

Broadly, seminar will address topics related to electronics and climatic exposure related issues such as corrosion failure mechanisms, material-design-process aspects leading to corrosion effects, intrinsic and extrinsic preventive strategies, and technological sector wise issues. Aim is to bring together electronics/electrical and material/corrosion experts both from academia and industries to tackle various issues.

Day 1 - Thursday 3 April

08:30 - 09:00 **Registration and breakfast**

09:00 - 09:35 **Intro to 10th seminar and challenges related to climate effects on electronics**
Rajan Ambat, Center for Electronic Corrosion, Technical University of Denmark

09:35 - 10:00 **Solder Mask as a Reliable Insulation Layer on Printed Circuit Boards - Different Layouts and Materials under Humidity and High Voltage**
Michael Vogt, University of Bremen, Germany

10:00 - 10:10 **Discussion time**

10:10 - 10:35 **Electrochemical investigation of thin-film encapsulation for electronic devices**
Michael Schneider, IKTS Fraunhofer, Germany

10:35 - 10:45 **Discussion time**

10:45 - 11:15 **Coffee break and networking**

11:15 - 11:40 **Influence of airborne particulate contamination on electronic hardware reliability**
Prabjit Singh, USA

11:40 - 11:50 **Discussion time**

11:50 - 12:15 **Effect of halide contamination on the corrosion behavior of materials for microelectronic applications**
Florian Georges, INSA Lyon, France

12:15 - 12:25 **Discussion time**

12:25 - 13:45 **Lunch**

13:45 - 14:10 **A New Approach to Corrosion Detection and Analysis for Future Mobility**
Seungho Ahn, Hyundai R&D, South Korea

14:10 - 14:20 **Discussion time**

14:20 - 14:45 **PCBA Reliability and Test for EV Applications - High-voltage PCBs and Aspects of Insulation Coordination**
Lothar Henneken, Bosch Automotive Electronics, Germany

14:45 - 14:55 **Discussion time**

14:55 - 15:30 **Coffee break and networking**

15:30 - 15:55 **Role condensed water film morphology on corrosion failure modes in electronics**
Anish Rao Lakkaraju/Jyothsna Rao, CELCORR, DTU, Denmark

15:55 - 16:05 Discussion time

16:05 - 16:30 Tailored Condensation Robustness Test for Pump with Electronics

John Jacobsen & Preben Jakobsen, Grundfos, Denmark

16:40 - 16:50 Summary of Day 1

17:00 - 17:15 Boarding bus for seminar dinner

Day 2 - Friday 4 April 2025

08:00 - 08:30 Arrival and breakfast

08:30 - 08:55 A quantitative evaluation of a conformal coating's capability to protect Printed Circuit Board assemblies from condensation

Phil Kinner, MacDermidAlpha, United Kingdom

08:55 - 09:05 Discussion time

09:05 - 09:30 Phasing Out PFAS: BioHalo's Biobased Polymer Solution

Alberto De Maria, BioHalo, Denmark.

09:30 - 09:40 Discussion time

09:40 - 10:05 Climatic Reliability Assessment of Materials and Processes

Mike Bixenman, Magnalytix, USA

10:05 - 10:15 Discussion time

10:15 - 10:45 Coffee break and networking

10:45 - 11:10 Corrosion related market issues in Hearing Aids

Helene Conseil-Gudla and Jakob Lautitz Hansen, Demant A/S, Denmark

11:10 - 11:20 Discussion time

11:20 - 11:45 Design for Cleaning

Vladimír Sítko, PBT Works, Czech Republic

11:45 - 11:55 Discussion time

11:55 - 13:10 Lunch time

13:10:30-13:35 Epoxy mold compounds for chips and some fails due to halide contamination

Lutz Muller, Bosch Automotive Electronics, Germany

13:35 - 13:45 Discussion time

13:45 - 14:10 Effect of heating on dendritic corrosion growth in copper-alumina isolation trenches

Juuso Rautio, LUT University, Finland

14:10 - 14:20 Discussion time

14:20 - 14:40 Coffee break and networking

14:40 - 15:05 Some elaboration on electrochemical migration failure mechanism, shorting, and electrical discharge

Jyothsna Rao/Feng Li, CELCORR, DTU, Denmark

15:05 - 15:15 Discussion time

15:15 - 15:40 **Overview of recent evolutions in ultrathin PFAS free coatings for electronics protections**

Alessio Quadrelli, Europlasma, Belgium

15:40 - 15:50 **Discussion time**

15:50 - 16:00 **Conclusion of seminar and closing remark**

Organizers

Professor Rajan Ambat, Center for Electronic Corrosion (CELCORR), Technical University of Denmark
Dr. Kapil Kumar Gupta, Center for Electronic Corrosion (CELCORR), Technical University of Denmark

Attendance fee

- 6,100 DDK for members of Teknologisk Videndeling, CreCon, DMN, EFC or ECPE
- 6,700 DDK for non-members

All prices are excluded of Danish VAT.

The fee covers conference materials, lunch, coffee and conference dinner.

Registration

Register [HERE](#)

Binding registration

Registration is binding, however substitutions are accepted at any time. Please let us know by mail: teknologiskvidendeling@construct.dtu.dk

Conference dinner 3 April 2025

The seminar dinner will be held 3 April at 18:00 at [The Odd Fellow Palace](#).

Hotels near DTU

- **Four Points Flex by Sheraton Lyngby** - approx. 500 meters from DTU
- **Gentofte Hotel** - approx. 6 kilometers from DTU
- **Hotel Fortunen** - approx. 3 kilometers from DTU
- **Frederiksdal Sinatur Hotel & Konference** - approx. 6 kilometers from DTU

Hotels near Nørreport station in Copenhagen

From Nørreport Station in Copenhagen, bus 150S (towards Kokkedal St.) provides a direct route to DTU. The bus journey from Nørreport Station to DTU (stop: Rævehøjvej) takes approximately 30 minutes, followed by a 5-minute walk to DTU from the bus stop.

- **Ibsens Hotel** (about a 6 minutes walk to Nørreport station, then approx. 30 minutes by bus to DTU)
- **Hotel Kong Arthur** (about a 6 minutes walk to Nørreport station, then approx. 30 minutes by bus to DTU)

Promotion partners

(Picture from the seminar in March 2024)