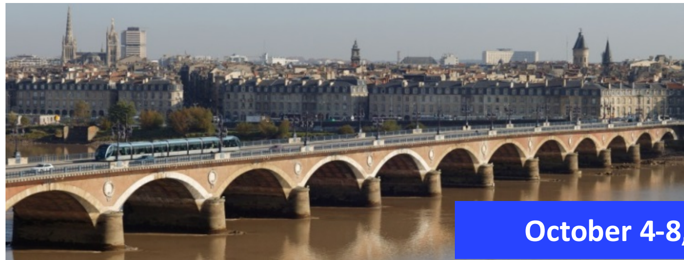
32nd European Symposium on Reliability of Electron Devices, Failure Physics and Analysis



October 4-8, 2021 - BORDEAUX - FRANCE

2nd CALL FOR PAPERS

ESREF 2021, the 32nd European Symposium on Reliability of Electron Devices, Failure Physics and Analysis, will take place from 4th to 8th October 2021.

This international symposium continues to focus on recent developments and future directions in Quality and Reliability Management of materials, devices and circuits for micro-, nano-, and optoelectronics. It provides a European forum for developing all aspects of reliability management and innovative analysis techniques for present and future electronic applications.

organized by :

U of TOULOUSE

with the technical co-sponsorship of :

IEEE
ANADEF - The French FA Society
EUFANET - European Failure Analysis Network
ECPE - European Center for Power Electronics

Due to the unprecedented health, travel and social distance restrictions imposed in France and all over the world as a result of the COVID19 pandemic, all participants and exhibitors will be invited to join a virtual ESREF2021 using an efficient web platform.

ESREF 2021 will be organized by IMS laboratory, University of Bordeaux in collaboration with LAAS-CNRS, University of Toulouse – Bordeaux is the European capital for optical and laser engineering, with the so called " Laser Mégajoule", one of the most powerful lasers in the world.

Some of the largest companies involved in aeronautic and aerospace industry are located around Bordeaux. Dassault Falcon series private jets are built there as well as the French military aircraft Rafale; the Airbus A380 cockpit, the boosters of Ariane 5.

The University of Bordeaux is leading the "Initiative of Excellence" (Idex) program in association with national research organizations and higher educational institutes. 53 000 students take benefit of the multidisciplinary and international framework of the "Investments for the Future" program.

Hosting ESREF 2021, even in a virtual environment is a great opportunity since reliability in these particular applications is a very hot topic with strong challenges such as zero ppm failure and harsh environments.

For this 32nd edition, in addition to the core topics of the conference, we would like to involve the major actors of aeronautics, space and embedded systems industry to provide specific topics such as radiation hardening, very long-term reliability, high/low temperature challenges, obsolescence and counterfeit issues, wide band gap power devices for the more electric aircraft and other embedded system applications.

We are looking forward to welcoming you for a memorable virtual experience!

SUBMISSION GUIDELINES

The deadline for the submission of summaries is March 12, 2021. A 4 pages abstract should clearly present the importance of the work and specific results. Authors are requested to upload an electronic file (in PDF) of the summary at **https://esref2021.sciencesconf.org/**

DEADLINES

12 March 2021	**Submission of a 4 pages abstract**
6 May 2021	**Notification of acceptance for the conference**
21 May 2021	**Submission of the 5-6 pages final paper for reviewing to the online Elsevier Editorial System (EVISE)**

Elsevier Ltd will publish the ESREF 2021 proceedings as a special issue of the Microelectronics Reliability journal, https://www.journals.elsevier.com/microelectronics-reliability

10 June 2021	**Upload of the corrected final paper to the online Elsevier Editorial System (EVISE)**

TECHNICAL PROGRAMME

The conference will focus on two main areas of interest in electronics concerning designers, manufacturers and users:

- Strategy for Quality and Reliability Assessment during Product Development and Life Cycle,
- Advanced Analysis Techniques for Technologies and Product Evaluation.

A specific emphasis will be placed on Space, Aeronautics and Embedded System related topics.

SCOPE OF PAPERS

Papers are requested on the following topics:

A - Quality and Reliability assessment techniques and methods for Devices and Systems
Design for reliability, Built-in reliability,
Virtual qualification, Reliability simulation,
Advanced models for Reliability prediction,
Reliability test structures, Limits to accelerated tests,
Screening methods, Yield/reliability relationship,
Obsolescence, Counterfeit.

B - Semiconductor Failure Mechanisms & Reliability for Si technologies & Nanoelectronics
Process-related issues, Passivation stability,
Hot carriers injection, NBTI, TDDB,
High-K dielectrics and gate stacks,
Low-K dielectrics and Cu interconnects,
Metal migration: mechanical and thermal aspects,
Non-volatile and programmable cells,
Silicon on Insulator devices,
Nano-electronics, Nano-electronic materials for solid state devices.

C - Progress in Failure Analysis: Defect Detection and Analysis
Electron, ion and optical beam techniques,
Scanning probe techniques,
Static or dynamic techniques, Backside techniques,
Acoustic microscopy,
Electric or magnetic field based techniques,
Electrical, thermal and thermo-mechanical characterization,
Sample preparation, construction analysis,
Failure analysis: case studies.

D - Reliability of Microwave devices and circuits
Wide band gap semiconductors,
Microwave and compound semiconductor devices,

E - Packaging and Assembly Reliability and Failure Analysis
Electrical Modeling & Simulations,
Mechanical Modeling & Simulations,
3D / TSV, Flip chip, Advanced substrates,
Chip/package interaction.

F - Power Devices and Microelectronic System: Reliability and Failure Analysis
- **F1** - Smart-power devices, IGBT, thyristors,
- **F2** - SiC and GaN power devices
- **F3** - Power Electronic System

G - Photonics Reliability
Solar Cells and Display,
Optoelectronics,
Organic electronics: OLED, Electronic Ink, TFT

H - MEMS and sensors Reliability
Bio-electronics, Bio-sensors, Nano-Bio-technologies,
MEMS and MOEMS,
NEMS and nano-objects.

I - Extreme environments and Radiation
ESD-EOS, Latchup
EMC-EMI (integrated circuits, power electronic systems)
Radiation impact on circuits and systems reliability

Tutorials by experts will provide review presentation of relevant topics and **Invited papers** will introduce the mainstream topics.

For further information concerning the Scientific Program, please contact: esref2021@ims-bordeaux.fr

STEERING COMMITTEE

F. ALTMAN	Fraunhofer IMWS-CAM (D)	N. LABAT	IMS, University of Bordeaux (F)
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