30th European Symposium on Reliability of Electron Devices, Failure Physics and Analysis
September 23-26, 2019.
ESREF 2019
Centre de congrès P. Baudis, Toulouse (France)
AIRBUS BELUGA

CALL FOR PAPERS

ESREF 2019, the 30th European Symposium on Reliability of Electron Devices, Failure Physics and Analysis, will take place in Toulouse (France) from 23th to 26th September 2019 at *Centre de Congrès Pierre Baudis*.

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 :   LAAS CNRS   cnes   IEEE France Section   EUFANET

with the technical co-sponsorship of :

iMS   IRT SAINT EXUPERY   anadef   ECPE

A word from the conference chairs

ESREF 2019 will be held in Toulouse - world center for aeronautics with Airbus assembly line, European capital of the space industry and leader in France for embedded electronic systems. Toulouse, called "Ville rose" (Pink city) for its characteristic architecture based on terra cotta bricks, combines a strong living spirit with a brilliant past. It is the third French university with more than 100,000 students and 147 laboratories. It is definitely turned towards the future with a large number of cutting-edge businesses in aeronautics, information technologies and spatial industries, as well as many research institutes. Hosting ESREF 2019 in this rich 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 30th 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 bandgap power devices for the more electric aircraft and other embedded system applications. A special session for Space and Aeronautic systems reliability is proposed. In the continuity of previous conferences, ESREF 2019 is also hosting several workshops and welcomes new ones related to these specific topics.

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

Nicolas NOLHIER   Guillaume BASCOUL
ESREF 2019 Chair   ESREF 2019 Vice-Chair

LOCATION OF THE CONFERENCE:

Centre de Congrès Pierre Baudis Toulouse
11 esplanade Compans Caffarelli   -   31685 Toulouse
(20 minutes by car/bus from the international airport of Toulouse - Blagnac)

SUBMISSION GUIDELINES

The deadline for the submission of papers is **March 11, 2019**. **The four to six pages paper** must include a five-line abstract and email address of the corresponding author. Please note that papers must be in English. The paper template and the upload process could be found at :

https://esref2019.sciencesconf.org

DEADLINES

11 March 2019	**Submission of 4-6 pages paper**
29 April 2019	**Notification of acceptance**
20 May 2019	**Submission of final paper**

Elsevier Ltd will publish the ESREF 2019 proceedings as a special issue of the Microelectronics Reliability journal.

10 June 2019	**Upload of final paper to the online Elsevier Editorial System (EES)**

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 and Aeronautics 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
I1 - ESD-EOS, Latchup
I2 - EMC-EMI (integrated circuits, power electronic systems),
I3 - 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, and a Special Session will be dedicated to "Space and Aeronautic systems" clustering the specific papers submitted from this domain among the different topics.

Workshops organized in correlation with the ESREF conference will give the opportunity to exchange the know-how and field returns on specific topics. ESREF 2019 is hosting several workshops (EFUG, EUFANET, POWER…) and welcomes new ones related to topics listed above.

For further information concerning the Scientific Program, please contact: esref2019@sciencesconf.org

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