



RADECS 2012

FIRST EUROPEAN WORKSHOP ON RADIATION EFFECTS AT GROUND LEVEL

September 24, 2012
Centre de Congrès -
Le Bellevue
Biarritz, France



RAGROUND 2012

The First European Workshop on Radiation Effects at Ground Level (RADGROUND) will be held on Monday, September 24, 2012 at the Centre de Congrès – Le Bellevue, Biarritz, France. It will be immediately followed by the annual RADECS conference on September 25-28, 2012 at the same location. RADGROUND will be the direct continuation, at European and international level, of a series of informal conferences RADSOL (Electronics and Natural Radiation at Ground Level) that have taken place in Paris since 2008, in the framework of the French GDR CNRS ERRATA, the RADECS Association and in relation with the IEEE French Section, the IEEE/NPSS French Chapter and the SEE.

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RADGROUND will consist of a one day workshop, including a short course session, a technical session (oral and poster presentations) and a round-table discussion. We are soliciting papers describing significant new findings including, but not limited to, the following areas:

- Characterization and Modeling of Terrestrial Environments (including Particle Detectors, Monitoring Tools and Underground Environments)
- Single Event Effects at Ground Level
- Irradiation Facilities and Testing Mimicking the Terrestrial Environment
- Soft Error Rate (SER) Effects from Terrestrial Neutrons, Protons, Muons, Pions and Alpha-Particles Emitted from Contaminants
- Life-Testing (Real-Time) for Chip or System SER
- Modeling of Devices, Circuits and Systems Subjected to Terrestrial Radiation
- Metrology of Alpha-Particle-Emitting Contaminants at Material or Circuit Levels

Abstract submission instructions

Authors are invited to submit their contribution(s) as a regular RADECS 2012 submission with the following requirements:

- An EXTENDED SUMMARY consisting of no less than two and no more than four pages (references included). The summary must include an author list with their respective affiliation and a short abstract. The summary must also provide sufficient detail about the work and appropriate references to permit a meaningful technical review. The authors must indicate (a) the purpose and context of the work, (b) new results or findings and (c) how the work advances the understanding in radiation effects at ground level.
- Authors are requested to state their preference for oral or poster presentation. To access to the submission application, please follow the link below.

<http://radecs.ies.univ-montp2.fr>

- Papers accepted for oral or poster presentation at RADGROUND will be eligible for a publication in the IEEE Transactions on Nuclear Science

Paper summary deadline: APRIL 15, 2012

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Technical Program – Session RG

Session RG – Radiation Effects at Ground Level

16:00 **Session Introduction**

Chairs: Luigi Dilillo¹ and David Truyen²

¹ University of Montpellier - LIRMM, ² ATMEL

RG-1 Proton Flux Anisotropy in the Atmosphere: Experiment and Modeling

16:05

F. Wrobel¹, J-R. Vaillé^{1, 2}, D. Pantel¹, L. Dilillo³, J-M. Gallière¹, A. Touboul¹, P. Chadoutaud⁴, P. Cocquerez⁴, M. Lacourty⁴, M-A. Clair⁴, J-L. Aufran⁵, C. Chatry⁶, F. Laplanche⁷, B. Azais⁷, F. Saigné¹

¹ University of Montpellier – IES, ² University of Nîmes, ³ University of Montpellier – LIRMM, ⁴ CNES, ⁵ University of Marseille - IM2NP, ⁶ TRAD, ⁷ DGA

We used two detectors differently tilted during stratospheric balloon flights and we proved the proton flux anisotropy. Experimental data are compared to simulations and a good agreement is shown.

RG-2 Neutrons-induced IGBT Failure: Effects of the Number of Tested Devices on the Cross Section Calculation

16:20

A.D. Touboul, L.L. Foro, F. Wrobel, K. Guetarni, J. Boch, F. Saigné

University of Montpellier – IES

Despite the long-range experience of space in testing and qualifying devices, an adaptation of existing guidelines is needed for atmospheric mass applications, especially to take into account the variability of Power-devices failure cross-section.

Technical Program - Monday

RADGROUNG Thematic Day

RADGROUNG Short Course

- 8:30 **Short course introduction**
Chairs: Ron D. Schrimpf¹ and Frédéric Saigné²
¹ Vanderbilt University, ² University of Montpellier 2
- 8:35 **The terrestrial environment (effects of cosmic rays and alpha particles)**
Robert Baumann
TEXAS Instrument
- 9:20 **Real Time Test**
Jean-Luc Aufran
University of Marseille
- 9:50 **Accelerated testing (ion/neutron beams, alpha foils, laser, etc.)**
Norbert Seifert
INTEL
- 10:05 *RADGROUND COFFEE BREAK*
- 10:20 **Simulation tools for prediction**
Robert Weller and Robert Reed
Vanderbilt University
- 11:05 **Power (SEB, SEGR, SEL)**
Antoine Touboul
University of Montpellier
- 11:50 **Rad. effects in Medical electronics**
Jeff Wilkinson
Medtronic
- 12:20 *RADGROUND LUNCH*

RADGROUNG Round Table

- 14:00 **Round Table**
to 16:00 *Chairs: Robert Baumann¹ and Charlie Slayman²*
¹ Texas Instrument, ² CISCO Systems