

Name of research institute or organization:

---

**iRoC Technologies**

Title of project:

---

System Soft Error Rate on electronic devices

Project leader and team

---

M. Bertrand Pollet,  
M. Marcos Olmos, M. Joel Galy.

Project description:

---

Cosmic rays are known to induce errors in electronics. A "soft error" sensitivity test would take years at sea level to have good statistics. It only takes three months at the Jungfraujoch Laboratory because of the neutron flux acceleration effect in altitude. The Jungfraujoch Laboratory is well suited for a life test of six months of 500 memory units.

Key words:

---

Cosmic rays, Electronic Devices, Soft Errors, SSER.

Internet data bases:

---

<http://www.iroctech.com>

Scientific publications and public outreach 2004:

---

**Data books and reports**

L. Anghel, M. Nicolaidis, "Cost Reduction and Evaluation of a Temporary Faults Detecting Technique", Design Automation and Test in Europe Conference (DATE), March 2000, Paris (best paper award).

D. Chardonnerau, R. Keulen, M. Nicolaidis, E. Dupont, K. Torki, F. Faure, R. Velazco. "Fault Tolerant 32-bit RISC Processor: Implementation and Radiation Test Results", 2002 Single Event Effects Symposium, April 23-25 2002, Manhattan Beach, California.

E. Dupont, M. Nicolaidis, P. Rohr, "Embedded robustness IPs for transient-error-free ICs", IEEE Design and Test of Computers, Vol. 19, No. 3, May/June 2002, pp. 56-70.

E. Dupont, M. Nicolaidis, "Robustness IPs for Reliability and Security of SoCs", IEEE International Test Conference, Baltimore MD, October 7-10, 2002, pp. 357-364.

D. Alexandrescu, L. Anghel, M. Nicolaidis, "New Methods for Evaluating the Impact of Single Event Transients in VDSM ICs", IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems, November 2002, Vancouver, Canada.

M. Nicolaidis, R. Perez "Measuring the Width of Transient Pulses Induced by Ionising Radiation", IEEE International Reliability Physics Symposium, IRPS 2003, Dallas, Texas, March 30 - April 4, 2003.

D. Alexandrescu, L. Anghel, M. Nicolaidis, "Simulating Single Event Transients in VDSM ICs for Ground Level Radiation", Journal for Electronic Testing: Theory and Applications, 20, 413-421, 2004.

Address:

---

iRoC Technologies  
4, place Robert Schuman  
38025 Grenoble  
France

Contacts:

---

Bertrand Pollet  
Tel: +33 438 120 763  
Fax: +33 438 129 615  
e-mail: [bertrand.pollet@iroctech.com](mailto:bertrand.pollet@iroctech.com)  
URL: <http://www.iroctech.com>