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of the IEEE Nuclear Plasma Sciences Society



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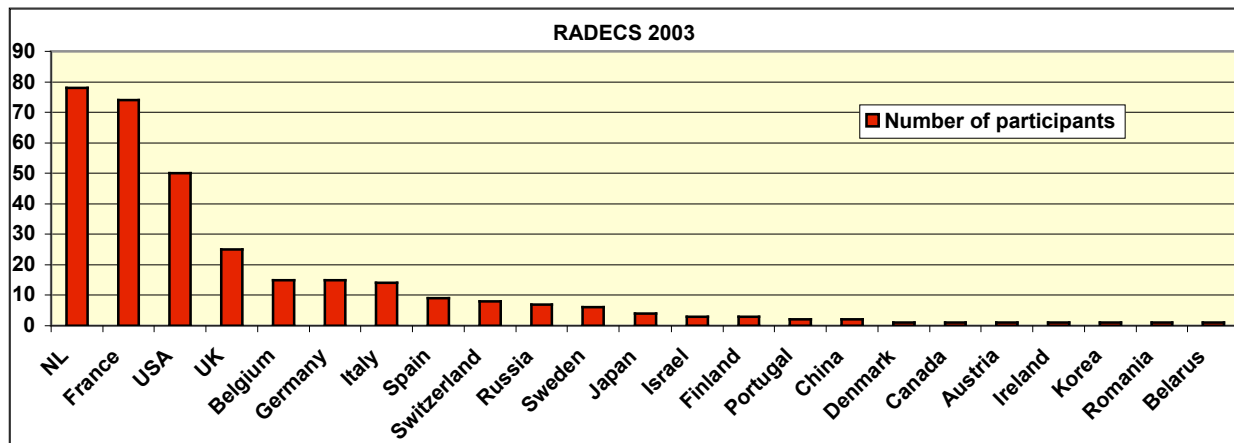
Chairperson: Michel Melotte, Alcatel ETCA

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LN2	Rad-tol Field Electronics for the LHC Cryogenic System <i>Agapito, Juan; Casas-Cubillos, Juan; Franco, Francisco; Palan, Bohuslav; Rodriguez Ruiz, M.</i>	653
LN3	Long-term Radiation Effects on Fiber Bragg Grating Temperature Sensors in Mixed Gamma-Neutron Fields <i>Fernandez Fernandez, Alberto; Brichard, B; Berghmans, Francis</i>	659
LN4	High-Energy Electron Irradiation of Different Silicon Materials <i>Ditongo, Selina; Bosisio, Luciano; Ciacchi, Martina; Contarato, Devis; D'Auria, G.; Fretwurst, Eckhart; Lindström, Gunnar; Rachevskaia, I.</i>	663
LN5	Enhanced Low Dose Rate Sensitivity (ELDRS) Observed in RADFET Sensor <i>Kim, Sung-Joon; Seon, Jong-Ho; Min, Kyoung-Wook; Shin, Young-Hoon; Choe, W.</i>	669
LN6	Charge Loss After ⁶⁰ Co Irradiation on Flash Arrays <i>Cellere, G; Paccagnella, A; Lora, S; Pozza, A; Tao, G; Scarpa, A</i>	673
LN7	Radiation Hardness of SBT-Based Ferroelectric Capacitors <i>Menou, N; Castagnos, A-M; Muller, Ch; Johnson, J.A; Goux, L; Wouters, D.J</i>	679

RADECS 2003 Statistics

Papers submitted	143
Papers accepted	45 oral + 64 posters
Withdrawn before conference	3 oral
Withdrawn after conference	3 oral + 2 posters
Late News accepted	7 posters
Published in Proceedings	111

Total number of participants	322
Number of Short Course participants	220
Number of countries	23
Participants per group:	
Component manufacturers	40
Industry	67
Academic Institutions	82
Government organisations	29
Space agencies	104 (73 from ESA)



RADECS 2003 Conference Overview

The seventh European Conference on Radiation and its Effects on Components and Systems (RADECS '03) was held September 15 – 19, 2003, at Huis ter Duin, Noordwijk, The Netherlands. Organised by the European Space Agency (ESA), this conference gathered together specialists dealing with radiation effects on electronic components, systems and a host of related areas. As a truly international conference it attracted more than 320 attendees from 23 countries all over the world, with particularly strong representations from the Netherlands, France, the United States, Belgium and Germany. Participants were scientists, engineers and students, working in industry, government organisations and research institutions.

A one-day short course on radiation and its effects was followed by four days of technical sessions. This year the conference programme featured a particularly large number of papers in the areas of Single Event Effects, Photonics and Integrated Circuits, Hardness Assurance and Basic Mechanisms.

On Monday, the short course “Radiation Engineering Methods for Space Applications”, organised and introduced by A. Mohammadzadeh (ESA/ESTEC) and split into four sessions, was attended by more than 220 participants. Largely following the development phases of a space project, the course was designed as a highly pragmatic tutorial on how to address EEE component radiation issues in the design and development of spacecraft electronic systems and in the procurement of components. The individual sessions and their presenters were:

“Environment (Mission) Analysis and Specification”	<i>R. Mangeret, EADS ASTRIUM SAS, France</i>
“Radiation Effects Analysis” subdivided into Total Ionising Dose, Displacement Damage and Single Event Effects	<i>J. Cueto Rodriguez, Alcatel Espacio, Spain</i> <i>G. Hopkinson, Sira-Electro-Optics, UK</i> <i>S. Duzellier, ONERA (DESP), France</i>
“Component Characterisation and Testing” subdivided into Total Ionising Dose, Displacement Damage and Single Event Effects	<i>J. Cueto Rodriguez, Alcatel Espacio, Spain</i> <i>G. Hopkinson, Sira-Electro-Optics, UK</i> <i>S. Duzellier, ONERA (DESP), France</i>
“Radiation Hardness Assurance for Space Systems”	<i>C. Poivey, NASA GSFC, USA</i> <i>S. Mattsson, SAAB Ericsson Space AB, Sweden</i>

The RADECS '03 technical sessions included 111 papers (42 oral presentations, 62 posters and 7 ‘Late-News’ papers) subdivided into 10 sessions.

Three invited speakers gave colourful, video-supported presentations, addressing space-research, historical, and local general-interest topics (the abstracts are below).

J.C. Boudenot, THALES Research and Technology, France, in his talk “The Birth of Radiation Physics” commemorated the 100th anniversary of Pierre and Marie Curie, together with Henri Becquerel, winning the third physics Nobel Prize; reviewing their particular achievements and discoveries about the nature of radioactivity in the context of the work leading to the first and second physics Nobel prizes.

J. Eijking, Director and Horticultural Advisor of the International Flower Bulb Centre (IFBC) in Hillegom, The Netherlands, in his talk “Tulips from Amsterdam” acquainted the audience with the vast varieties of bulb flowers and gave astonishing insights into flower bulb farming and its flourishing trade contributing to Holland’s fame.

F. De Winne, ESA Astronaut, presented “The Odissea Mission to the International Space Station – November 2002”. With captivating pictures and video footage he shared his experiences of testing the new Soyuz TMA-1 spacecraft during its flight to the ISS, and talked about life, work and experiments performed on the Space Station.

The poster sessions organised by W. Hajdas, PSI, Switzerland, and introduced by the session chairpersons, featured a large variety of high quality presentations providing valuable insights and test data.

An industrial exhibition, with 21 booths occupied by component manufacturers, parts procurement agencies, test facilities and service providers as well as space agencies and professional organisations, was an important meeting forum for the exchange of information.

The conference also offered the possibility of numerous side meetings to discuss the status of existing collaborative efforts and the prospects for new initiatives.

A Technical Tour of the test facilities at ESA's European Space Research and Technology Centre (ESTEC) in Noordwijk, and the nearby Space Expo museum, completed the technical programme on Friday afternoon.

Thanks to the exemplary efforts of contributing authors, numerous reviewers, invited speakers and the Technical Committee we were able to compile a very informative and educational conference programme, sharing the most recent research results and relevant engineering achievements with the international radiation effects community. Emphasising its international scope, it was also the first time that a RADECS conference has taken place outside of France, an example that will hopefully find its successors in the future.

According to the feedback received, the conference was highly appreciated for its technical content, pleasant ambiance and social programme. For this encouraging perception, we would like to thank all the conference attendees, all the presenters, invited speakers and exhibitors for their excellent contributions and support to another successful RADECS conference.

Our particular thanks go also to all members of the organisation, the technical and advisory committees and to all of the reviewers, as well as to the ESA Conference Bureau and many others involved, for their excellent work and dedication.

On behalf of the IEEE Nuclear and Plasma Sciences Society Radiation Effects Committee and the RADECS Association we thank again all the participants for the success of this conference.

*Ralf de Marino, General Chairman,
Reno Harboe Sørensen, Technical Chairman
ESA/ESTEC, Noordwijk, The Netherlands*

List of Official Reviewers

Len Adams, Brunel University	Bo Granbom, Saab Avionics	V. Re, University of Bergamo
Jean-Marc Armani, CEA	Leif Granholm, SSC	Steven Redant, IMEC
Louis Baguena, Alcatel Space	Thomas Granlund, Saab Avionics	Nicole Reinecke, Astrium
Catherine Barillot, Alcatel Space	Hector Guerrero, INTA	Joerg Rieling, Astrium Space
Janet Barth, NASA-GSFC	Wojtek Hajdas, PSI	Infrastructure
Sophie Barthe, Astrium	Reno Harboe-Sørensen,	Guy Rolland, CNES
Mark Baze, Boeing	ESA/ESTEC	Keith Ryden, QinetiQ
Joe Benedetto, UTM	Dominique Hervé, SODERN	Olivier Saint-Pe, Astrium
Guy Berger, UCL	Daniel Heynderickx, BIRA	Eddy Simoen, IMEC
Francoise Bezerra, CNES	Laurent Hili, ESA/ESTEC	John Sorensen, ESA/ESTEC
Jan Bogaerts, Fill Factory	Gordon Hopkinson, SIRA EO	E.G. Stassinopoulos, NASA-GSFC
Daniel Boscher, ONERA/DESP	Burkhard Jaehn, Astrium Space	Philippe Sylvestre, iROC
Younes Boulghassoul, Vanderbilt	Infrastructure	Larry Townsend, Univ of
University	Allan Johnston, Jet Propulsion Lab	Tennessee
Steve Buchner, NASA-GSFC	Harjinder Jolly, QinetiQ	Peter Truscott, QinetiQ
Michel Bugaud, DIMRI/CEA	Rodri Jones, MBDA UK Ltd	Marco Van Uffelen, SCK-CEN
Philippe Calvel, Alcatel Space	Anthony Jordan, Aeroflex	Craig Underwood, Univ. of Surrey
Marie-Catherine Calvet, EADS	Andy Kent, Astrium	Nick v Vanno, Intersil
Launch Vehicles	Rocky Koga, Aerospace	François Vasey, CERN
Art Campbel, Naval Research	Juha Kuitunen, PATRIA	Raoul Velazco, TIMA
Laboratory	Ken LaBel, NASA-GSFC	Jean Louis Venturin, CNES
Andrea Cester, Universita di	Jean-Luc Leray, CEA	Ari Virtanen, University of
Padova	Erhard Lorne, Defence R&D	Jyvaskyla
Andrew Chugg, MBDA UK Ltd	Canada	Thijs Wijnands, CERN
Cor Claeys, IMEC	Florence Malou, CNES	Theodore Wrobel, Sandia National
Lewis Cohn, DTRA	Renaud Mangeret, Astrium	Labs
Juan Cueto-Rodriguez, Alcatel	Ronan Marec, Alcatel Space	Etienne Van Wynendale, Alcatel
Spacio	Ralf de Marino, ESA/ESTEC	ETCA
Eamonn Daly, ESA/ESTEC	Stanley Mattsson, SES	Mike Xapsos, NASA-GSFC
Frederic Darracq, Université	Peter McNulty, Clemson Univ.	Candice Yui, Jet Propulsion Lab
Bordeaux	Michel Melotte, Alcatel ETCA	
Jean-Pierre David, ONERA DESP	A. Mercha, IMEC	
J. Deen, McMaster University	Stefan Metzger, Fraunhofer	
Andrea Denker, HMI Berlin	Institute	
Dominic Doyle, ESA/ESTEC	Olivier Mion, Alcatel Space	
Laurent Dusseau, Université	Industries	
Montpellier	Ali Mohammadzadeh,	
Sophie Duzellier, ONERA	ESA/ESTEC	
Clive Dyer, QinetiQ	Joerg Nagel, Astrium Space	
Robert Ecoffert, CNES	Bob Nickson, ESA/ESTEC	
Hugh Evans, ESA/ESTEC	Michael Nicolaidis, iROC	
Joe Fabula, Xilinx	Petteri Nieminen, ESA/ESTEC	
Federico Faccio, CERN	Duc Nguyen, Jet Propulsion Lab	
Denis Flandre, UCL	Eugene Normand, Boeing	
Kurt Forslund, Alcatel Space	Radiation Effects Lab	
Rosine Germanicus, CNES	Ole Pedersen, Astrium	
Greg Ginet, AFRL/VS BX	Daniel Peyre, Astrium	
Alain Giraud, CEA	Christian Poivey, NASA-GSFC	

Abstracts of the Invited Speakers

The Birth of Radiation Physics

J.C. Boudenot

THALES

A century ago (1903), Pierre and Marie Curie, together with Henri Becquerel, received the third physics Nobel Prize in history. This event is being celebrated in many places throughout 2003. Because of the impact of this discovery on our radiation community, this talk recalls that great period of physics. The late years of the nineteenth century were the dawn of the nuclear age, with the discovery of x-ray and radioactivity. In this talk, Jean-Claude Boudenot will focus on the works of the physicists who won the first three Nobel Prizes for physics: Wilhelm Röntgen (1901); Hendrick Antoon Lorentz & Peter Zeeman (1902); Henri Becquerel and Pierre & Marie Curie (1903).

Jean-Claude Boudenot is currently in charge of the team dedicated to III-V components research at THALES Research and Technology. He also teaches physics at engineering schools, mainly at the Institut Supérieur d'Electronique de Paris (ISEP).

Jean-Claude Boudenot has a particular passion for 'history of physics'. He has authored more than 20 papers in this field as well as two books: "Histoire de la physique et des physiciens" and "Max Planck". He is currently writing the first biography of Hendrick Antoon Lorentz (one of the most famous Dutch physicists) and will launch a new biography collection of physicists in the frame of the "2005 world year of physics".

Tulips from Amsterdam

J. Eijking

IFBC

Although a wide range of flower bulbs have been grown in the Netherlands for over 400 years, none of them is native to the country. Over the years, the Dutch collected species from all over the world and tried to imitate the original growing conditions as far as possible.

Due to experience, optimal growing conditions, breeding and research, nowadays the Dutch grow about 21.000ha with thousands of varieties that are hardly comparable with the original species in nature.

In this talk, Jos Eijking will provide us with some insights into flower bulb farming and trade, a literally flourishing trade located in this region of Holland.

Jos Eijking grew up in a bulb-growing family and graduated from the Horticultural College for Flower Bulb Culture at Lisse. As the Director and Horticultural Advisor of the International Flower Bulb Centre (IFBC) in Hillegom, he is the prime ambassador of the Dutch flower bulb sector, and is responsible for its international promotion activities.

The Odissea Mission to the International Space Station – November 2002

F. De Winne

ESA astronaut

In this talk, ESA astronaut Frank De Winne will describe his experiences during the Odissea Mission to the International Space Station (ISS). The Odissea mission, on board the Soyuz spacecraft, included Mission Commander Sergey Zaletkin, and flight engineers Yuri Lonchakov and De Winne. The Russian Soyuz rocket lifted off from Baikonur in Kazakhstan on 30 October 2002, testing the new Soyuz TMA-1 spacecraft. The primary task of the mission was to replace the old TM-34 Soyuz vehicle attached to the Station with the modernised new ‘lifeboat’ Soyuz TMA-1.

During the mission, Frank performed a series of science and technology related experiments including work on the Microgravity Science Glovebox.

Frank De Winne, born in the Belgian city of Ghent in 1961, graduated from the Royal School of Cadets, Lier, in 1979. He received a Masters degree in telecommunications and civil engineering from the Royal Military Academy, Brussels, in 1984. In 1991, he completed the Staff Course at the Defence College in Brussels, gaining the highest distinction. In 1992, he graduated from the Empire Test Pilots’ School (ETPS) in Boscombe Down, England, where he was awarded the McKenna Trophy.

Frank De Winne logged more than 2300 hours flying at the controls of Mirage, F16, Jaguar and Tornado high-performance aircraft before joining ESA’s European Astronaut Corps in January 2000. Frank De Winne is currently performing Odissea postflight activities which make this de-briefing possible.

Short Course Presenters



Ali Mohammadzadeh received his B.S. and M.S. (1993) from the University of Bergen (Norway) and his Ph.D. in Physics from Brunel University, West London (UK) in 1997. In 1996 Dr. Mohammadzadeh joined the European Southern Observatory (Munich, Germany) as a CCD specialist. Since the end of 1997 he has been working at the European Space Agency (ESTEC, The Netherlands) as a Radiation Effects Engineer. Within the Radiation Effects and Component Analysis Techniques Section, his responsibilities include the support of ESA projects on EEE component radiation issues, the preparation and implementation of relevant R & D and radiation test activities. His main expertise is in Total Ionising Dose (TID) and Displacement Damage effects. Dr. Mohammadzadeh has authored and co-authored more than 20 papers.



Renaud Mangeret received his Ph.D. in Electronics from the Paul Sabatier University, Toulouse (France) in the Materials and Components for Electronics department in 1992. After receiving his Ph.D., he worked at the IBM Almaden Research Center, California, as a visiting scientist working on non-linear optics (NLO) polymers. From 1993-1995 Dr. Mangeret worked at Giat Industries, Toulouse as a research and development engineer. Since 1995 Dr. Mangeret has been the radiation specialist at Matra Marconi Space/ EADS Astrium SAS, Toulouse (France). He is responsible for all aspects of Radiation hardness assurance solutions for use of sensitive devices in Space programmes (telecommunications, earth observation, interplanetary scientific, launchers). His tasks include: radiation environment definition, study of radiation effects in electronics and opto-electronics components and materials, study of shielding properties of materials and structures for space applications, etc. Dr. Mangeret is a member of IEEE and has served as session chair at previous RADECS events.



Juan Cueto Rodríguez has an Engineering Telecommunications Degree from Polytechnic University of Catalonia (UPC) in Barcelona (Spain). He entered TIMA-CMP (Grenoble, France) in 1998 as Project Engineer in charge of hardening and testing electronics for space applications. In 2000, he joined the Space Environment and Radiation Effects group in CNES (Toulouse, France) as a principal investigator for the ICARE and COMRAD radiation monitors. Since 2001 he has been working at Alcatel Espacio (Madrid, Spain) as the responsible for radiation effects on Alcatel Espacio space projects.



Gordon Hopkinson received his B.Sc. and Ph.D. degrees in physics from the University of Manchester, UK. He then worked on astronomical applications of solid state arrays, first at Durham University and then at the X-ray Astronomy Group of the University of Leicester. Dr. Hopkinson joined Sira Electro-Optics (Chislehurst, Kent, UK) in 1983 to work on the use of CCDs in star trackers and other space-based applications. He started working on radiation effects in 1988 and has conducted numerous studies on effects in CCDs, active pixel sensors and IR detector arrays, as well as support electronics, such as ADCs. Dr. Hopkinson has served as a session chair or co-chair at NSREC 1996, ESCCON 2000, RADECS 2000 and 2001 and is Awards Chairman for NSREC 2003. He has authored or co-authored over 30 publications and received the NSREC Outstanding Paper Award in 1994.



Sophie Duzellier graduated from the Institut National des Sciences Appliquées Toulouse (INSA) in 1986. She received a degree of ‘Docteur ingénieur’ from the University Paul Sabatier (Toulouse) in 1989. Dr. Duzellier then joined ONERA as a research engineer in the Electronics group of the Space Department (DESP). She carried out simulation and experimental work on Single Event Effects in electronic devices. Her current activities include testing methods and modelling the proton and heavy ion response of complex integrated circuits. She has served as session chair for the IEEE NSREC and RADECS conferences and on the technical committees of several RADECS events. She has authored or co-authored over 30 scientific publications.



Christian Poivey graduated from l’Institut des Sciences de l’Ingenieur de Clermont-Ferrand, France, in 1985. Then he carried out research work on electrical simulation tools in the Commissariat à l’Energie Atomique (CEA), Centre d’Etudes de Bruyeres Le Chatel. In 1988 he was awarded the degree of ‘docteur ingénieur’ from the University of Clermont-Ferrand II for this work. In 1988 he joined Matra Marconi Space. From 1988 to 1992, he worked as a parts engineer. His main task was the evaluation of parts for the SPOT4/HELIOS program. In 1992, he joined the Matra Marconi Space radiation group to perform R&D and testing on Single Event Effects. From 1995 to 2000 he was the radiation group leader. In 2000, he joined the radiation group of NASA Goddard Space Flight Center. He is responsible for radiation related issues on the ST5 and other flight data analysis projects. He also conducts R&D studies on Single Event Transient effects on linear analog devices. Dr Poivey was a 2002 NSREC short course instructor and is the author or co-author of more than 20 papers.



Stanley Mattsson received his Master of Physics degree (1973) and his Doctorate degree in Physics/Nuclear Physics (1979) from the University of Gothenburg/Chalmers University of Technology (Gothenburg, Sweden). From 1979 to 1981 Dr. Mattsson worked as a Visiting Scientist at CERN. From 1981-1983 he was Scientific Associate and from 1983-1989 an Associate Professor at Chalmers University of Technology (Gothenburg, Sweden). Since 1989 Dr. Mattsson has worked at SAAB Ericsson Space AB (Gothenburg, Sweden), initially managing the Radiation Effects Group. Subsequently he became the manager of the Component Section, comprising the Components Technology group, the Components Analysis Group and the Material Analysis Group. In 1996 he became Head of the Components Department, and he is currently the Technical Manager of the Production Division. Dr. Mattsson has published and co-authored numerous publications.

Comments from the Awards Chairman

My sincere appreciation and thanks go to the Awards Committee members who applied themselves fully to the task and devoted their knowledge, experience, consideration and discipline to a difficult, laborious call. I am quite confident that we have come up with a fair evaluation of oral and poster presentations on their technical merit as well as clarity of presentation.

Out of 45 oral presentations, 11 reached and exceeded a score of 70%, while three posters were rated similarly well. As in many of these cases the scores were quite close, the nominated papers are listed below in the alphabetical order of their sessions and not in the order of their marks.

Guy Berger

Awards Committee Chairman

Université Catholique de Louvain, Belgium

Awards Committee Members

Louis Baguena	Alcatel Space Industries, F
Janet Barth	NASA GSFC, USA
Guy Berger	Université Catholique de Louvain, B
Françoise Bezerra	CNES, F
Andrew Chugg	MBDA Ltd, UK
Eamonn Daly	ESA/ESTEC
Jean Paul David	ONERA-DESP, F
Sophie Duzellier	ONERA CERT, F
Clive Dyer	QinetiQ, UK
Rémi Gaillard	RADECS Association, F
Wojtek Hajdas	Paul Scherrer Institut, CH
Gordon Hopkinson	SIRA Technology Ltd., UK
Alan Johnston	JPL, USA
Rocky Koga	Aerospace Corporation, USA

Ken Label	NASA GSFC, USA
Jean Luc Leray	CEA, F
Renaud Mangeret	EADS Astrium SAS, F
Paul Marshall	NASA GSFC, USA
Stanley Mattsson	Saab Ericsson Space, S
Michel Melotte	Alcatel ETCA, B
Alessandro Paccagnella	Universita di Padova, I
Philippe Paillet	CEA, F
Eddy Simoen	IMEC, B
Ron Shrimpf	Vanderbilt University, USA
Gary Swift	JPL, USA
Marco Van Uffelen	SCK-CEN, B
Raoul Velazco	TIMA, F
Ari Virtanen	University of Jyväskylä, FIN

The RADECS 2003 Awards

Nominated Oral Presentation Papers

- B4 Identification of Radiation-Induced Parasitic Leakage Paths Using Light Emission Microscopy
Shaneyfelt, Marty; Tangyonyong, Paiboon; Hill, Thomas A.; Soden, Jerry M.; Flores, Richard S.; Schwank, James R.; Dodd, Paul E.; Hash, Gerald L.
Sandia National Laboratories
- C2 Validity of Using a Fixed Analog Input for Evaluating the SEU Sensitivity of a Flash Analog-to-Digital Converter
Buchner, Stephen¹; Campbell, Arthur²; Sternberg, Andrew³; McMorrow, Dale²; Massengill, Lloyd³; Dyer, Clive⁴
¹NASA/GSFC, ²NRL, ³Vanderbilt University, ⁴QinetiQ
- D4 Proposal for a Radiation Test of Virtex-based ALUs
Alderighi, Monica¹; Casini, Fabio²; D'Angelo, Sergio¹; Faure, Fabien³; Mancini, Marcello¹; Pastore, Sandro²; Sechi, Giacomo¹; Velazco, Raoul³
¹CNR/IASF, ²Sanitas E.G., ³TIMA
- D5 Space Processor Radiation Mitigation and Validation Techniques for an 1800 MIPS Processor Board
Hillman, Robert¹; Swift, Gary²; Layton, Phil¹; Conrad, Mark¹; Thibodeau, Chad¹; Irom, F²
¹Maxwell Technologies, ²JPL
- E5 Analyses of CCD Images of Nucleon-Silicon Interaction Events
Chugg, Andrew¹; Jones, Rodri¹; Moutrie, Michael¹; Dyer, Clive²; Ryden, Keith²; Truscott, Peter²; Armstrong, James³; King, Douglas³
¹MBDA UK Ltd, ²QinetiQ, ³BAE SYSTEMS
- F3 Temperature Effects and Long Term Fading of Implanted and Un-Implanted Gate Oxide RADFETs
Haran, Avner¹; Jaksic, Aleksandar²; Refaeli, Nati¹; Eliyahu, Avraham¹; David, David¹; Barak, Joseph¹
¹Soreq NRC, ²National Microelectronics Research Institute (NMRC)
- F4 Hot Pixel Generation in Active Pixel Sensors: Dosimetric and Micro-dosimetric Response
Scheick, Leif¹; Novak, Frank²
¹JPL Caltech, ²LARC NASA
- G1 High Energy Proton Irradiation Effects in GaAs Devices
Warner, Jeff^{1,3}; Walters, Rob¹; Messenger, Scott²; Summers, Geoff^{1,3}; Khanna, Shyam⁴; Estan, Diego⁴; Erhardt, Lorne⁴; Houdayer, Alain⁵
¹US Naval Research Laboratory, ²SFA, Inc., ³University of Maryland, ⁴DRDC Ottawa, ⁵University of Montreal
- G2 Assessing Space Radiation Environment Effects on an Erbium-Doped Fiber Amplifier
Caussanel, Matthieu¹; Signoret, Philippe¹; Gilard, Olivier²; Sotom, Michel³; Touboul, A.¹; Gasiot, Jean¹
¹Montpellier II University, ²CNES, ³Alcatel Space
- H2 Spacecraft Activation and South Atlantic Profiles Mapping Measured with RHESSI Satellite
Hajdas, Wojtek¹; Eggel, Christina¹; Wigger, Claudia¹; Sanctuary, H.¹; Zehnder, Alex¹; Smith, David²
¹Paul Scherrer Institut, ²UCL Berkeley

Nominated Poster Papers

- AP2 Radiation Damage of InGaAs Photodiodes by High-Temperature Electron and Neutron Irradiation
Ohyama, Hidenori¹; Takakura, Kenichiro¹; Hayama, Kiyoteru¹; Simoen, Eddy²; Claeys, Cor²; Hirao, Toshio³
¹Kumamoto National College of Technology, ²IMEC, ³Takasaki JAERI
- FP2 A Comparative Study Between Two Neutron Facilities Regarding SEU
Granlund, Thomas¹; Olsson, Nils²
¹Saab Avionics AB, ²Swedish Defence Research Agency
- LN1 14 MeV Neutron-Induced SEU in SRAM Devices
Flament, Olivier¹; Baggio, J¹; D'Hose C¹; Gasiot, G^{1,2}; Leray, J.L¹
¹CEA DIF, ²ST Microelectronics

The RADECS 2003 Best Oral Paper Award goes to:

- G1 High Energy Proton Irradiation Effects in GaAs Devices
Warner, Jeff^{d,3}; Walters, Rob¹; Messenger, Scott²; Summers, Geoff^{d,3}; Khanna, Shyam⁴; Estan, Diego⁴; Erhardt, Lorne⁴; Houdayer, Alain⁵
¹US Naval Research Laboratory, ²SFA, Inc., ³University of Maryland, ⁴DRDC Ottawa, ⁵University of Montreal

The RADECS 2003 Best Poster Award goes to:

- LN1 14 MeV Neutron-Induced SEU in SRAM Devices
Flament, Olivier¹; Baggio, J¹; D'Hose C¹; Gasiot, G^{1,2}; Leray, J.L¹
¹CEA DIF, ²ST Microelectronics

TIME	Monday September 15	Tuesday September 16	Wednesday September 17	Thursday September 18	Friday September 19
08:00	<<<<<<<<<<<<<<<<<<<<<<<< Registration Desk Open **>>>>>>>>>>>>>>>>>>>>>>				
09:00	08:30 – 08:40 Short Course Introduction <i>All Mohammadzadeh</i>	08:30 – 09:00 Conference Opening	08:30 – 09:25 Invited Talk: The Birth of Radiation Physics	08:30 – 09:25 Invited Talk: Tulips from Amsterdam J. Eijking, <i>FBC</i>	08:30 Invited Talk: The Odissea Mission to the International Space Station F. De Winne, <i>ESA astronaut</i>
	08:40 Environment (Mission) Analysis & Specification <i>Renaud Mangeret</i>	09:00 – 10:20 Session A	J.C. Boudenot, <i>THALES</i> 09:25 – 10:30 Session C	09:25 – 10:30 Session E	09:25 – 10:30 Session G
10:00	10:00 – 10:30 Break	10:20 – 10:50 Break	10:30 – 11:00 Break	10:30 – 11:00 Break	10:30 – 11:00 Break
11:00	10:30 – 12:00 Radiation Effects Analysis <i>Juan Cueto Rodriguez Gordon Hopkinson Sophie Duzellier</i>	10:50 – 12:30 Session A	11:00 – 12:30 Session C	11:00 – 12:30 Session E	11:00 – 12:25 Session H
12:00	12:00 – 14:00 Lunch	12:30 – 14:00 Lunch	12:30 Poster Session Intro <i>Wojtek Hajdas</i> 12:35 – 14:00 Lunch	12:30 – 14:00 Lunch	12:25 – 12:30 Conference Close 12:30 – 14:15 Lunch
13:00					
14:00	14:00 – 15:30 Component Characterisation & Testing <i>Juan Cueto Rodriguez Gordon Hopkinson Sophie Duzellier</i>	14:00 – 15:25 Session B	14:00 – 15:00 Poster Session 1	14:00 – 15:00 Poster Session 2	14:15 ESTEC Technical Visit
15:00	15:30 – 16:00 Break	15:25 – 15:55 Break	15:00 – 15:30 Break	15:00 – 15:30 Break	
16:00	16:00 – 17:30 Radiation Hardness Assurance For Space Systems <i>Christian Poivey Stanley Mattsson</i> 17:30 Wrap-Up	15:55 – 17:05 Session B	15:30 – 17:20 Session D	15:30 – 17:15 Session F	
17:00		17:05 –17:30 Late News		17:15 – 17:20 Author Briefing	
18:00	17:30 RADECS Association Meeting	17:30 – 19:00 Conference Reception	18:00 Exhibitor's Reception	19:00 Conference Dinner	
19:00					

Announcement: RADECS 2005

8th European Conference
Radiation and Its Effects on Components and Systems
19-23 September 2005
Palais des Congrès du Cap d'Agde
France

The 8th European Conference on Radiation and Its Effects on Components and Systems, RADECS 2005, will take place in the Palais des Congrès, Cap d'Agde, France, from 19 to 23 September 2005. The Conference technical programme will feature oral and poster presentations describing recent observations, results and developments concerning radiation effects on materials, electronic components and systems.

A short course will be held on 19 September 2005. A technical exhibition is also part of the programme.

Cap d'Agde

After 26 centuries of history, Agde has become a modern city that is expanding due to tourism. It is well known for its recreation, and its location on the Mediterranean coast of France ensures a temperate climate during September.

Theme

As is the case each year, the RADECS Conference is the major European rendezvous for the Radiation Effects community. A variety of papers describing radiation effects on devices, integrated circuits, sensors and systems, as well as hardening, test and environmental modelling methods, will be presented in oral and poster sessions. Target applications are space, the nuclear power industry, atmospheric & ground radiation effects, military, high energy physics, and related areas.

Call for Papers

The working language of the Conference will be English.

We invite submission of papers describing significant new findings in the following areas:

- Radiation Environments
 - Space and Avionics, High Energy Physics, Nuclear Medicine, Military
 - Characterisation and Modelling
 - Radiation Environment Monitors
- Radiation Effects on Materials, Components and Systems
 - Basic Mechanisms
 - Characterisation, Computer Simulations
 - Ground and In-orbit testing
- Radiation Hardening and Mitigation Techniques on Process, Circuit Design and System Level
- Radiation Test Facilities and Dosimetry
- Radiation Hardness Assurance, Test Methods and Standards
- New Developments of Interest to the Radiation Effects Community

Deadline for submission: April 5th, 2005

Submissions will also be assessed with respect to their suitability for publication in a special Conference issue of the IEEE Transactions on Nuclear Science, based on separate submission of a complete paper, and subject to an independent review after the Conference. Further information will be sent to prospective authors upon acceptance of their RADECS summary.

Industrial Exhibition

An industrial exhibition will be located adjacent to the conference areas from Tuesday afternoon until Thursday evening, 20-22 September. Companies and organisations wishing to promote their products, facilities and services in the radiation effects domain are invited to obtain detailed information from the RADECS website (www.radeecs.org)

General Chairman:	L. Dusseau
Technical Chairman:	F. Saigné
Local Arrangement:	B. Sagnes
Secretary:	P. Bargoin

RADECS 2005 is organised by:

Centre d'Electronique et de Micro-optoélectronique de Montpellier

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