

2023 IEEE Nuclear and Space Radiation Effects Conference Awards: Comments by the Chair

ON BEHALF of the Committee, I am pleased to announce the 2023 IEEE Nuclear and Space Radiation Effects Conference (NSREC) awards. In a strong field of candidate papers, one paper stood out in terms of relative ranking and scoring, and two papers received evaluations well above those of the remaining papers. Accordingly, it was decided to award the best paper and two meritorious papers for NSREC 2023. The Outstanding Conference Paper was first authored and presented by a student, so it also received the Best Student Paper Award. In addition, two Data Workshop papers were judged to be equally outstanding on the basis of the quality and impact of the posters at NSREC. The award recipients include:

Outstanding Conference Paper

“Effect of Energy, Flux and Bias Conditions on Proton-Irradiated CMOS Single Photon Avalanche Diodes,” by *A. Jouni, V. Malherbe, B. Mamdy, T. Thery, V. Correas, S. De Paoli, V. Lалуcaa, C. Virmontois, G. Gasiot, and V. Goiffon*

Meritorious Conference Paper

“In-Situ Observation of Circuit Behavior Using Pump-Probe Laser Voltage Probe Technique,” by *M. King, J. Beutler, N. Smith, I. Kohl, T. Meisenheimer, O. Atli, P. Mohan, and K. Mai*

Meritorious Conference Paper

“Ion-Induced Stuck Bits in 5-nm Bulk FinFET SRAMs at High Fluences,” by *Y. Xiong, N. Pieper, N. Dodds, G. Vizkelethy, N. Nowlin, and B. Bhuvu*

Outstanding Student Paper

“Effect of Energy, Flux and Bias Conditions on Proton-Irradiated CMOS Single Photon Avalanche Diodes,” by *A. Jouni, V. Malherbe, B. Mamdy, T. Thery, V. Correas, S. De Paoli, V. Lалуcaa, C. Virmontois, G. Gasiot, and V. Goiffon*

Outstanding Data Workshop Presentation

“NASA Goddard Space Flight Center’s Current Radiation Effects Test Results,” by *M. O’Bryan, E. Wilcox, M. Joplin, T. Carstens, J. Barth, M. Casey, J. Lauenstein, M. Campola, J. Osheroﬀ, E. Wyrwas, A. Antonsanti, A. Le Roch, L. Ryder, K. Ryder, R. Austin, M. Berg, P. Majewicz, and J. Pellish*

Outstanding Data Workshop Presentation

“Comparison of Figure of Merit Calculations to On-Orbit Data,” by *R. Sean, C. David, B. Vermeire, and D. Hansen*

The Awards Committee resumed the selection of candidate papers in the traditional manner. During the conference,

the Awards Committee selected candidate papers based on conference presentations, both oral and poster. At least six committee members judged each conference session and scored each presentation on the basis of technical quality, originality, clarity, and significance to the community. In addition, each member of the committee also evaluated all the Radiation Effects Data Workshop presentations. At the conclusion of the conference, the committee discussed the results of the scoring process. This year, ten presentations were selected as candidates for the Outstanding Conference Paper Award. In addition, evaluations of the Data Workshop papers were discussed and two Outstanding Data Workshop Presentations were selected. Following the conference, the manuscripts of the nominated papers were reviewed and scored using the criteria mentioned above. Additional details of the NSREC awards process and a discussion of the impact of NSREC Outstanding Conference Papers can be found in [1].

The following seven papers also were nominated and considered by the Awards Committee for consideration for the Outstanding Paper Award and, when appropriate, the Outstanding Student Paper Award.

“Temperature Cycling Effects on Infrared Radiation-Induced Attenuation of Silica-Based Optical Fibers,” by *M. Roche, A. Morana, E. Marin, A. Boukenter, Y. Ouerdane, G. Melin, T. Robin, N. Balcon, J. Mekki, and S. Girard* (Student paper)

“Impact of Irradiation Temperature, Doping and Proton Energy on InGaAs Photodiodes,” by *M. Benfante, J.-L. Reverchon, C. Durnez, C. Virmontois, S. Demiguel, and V. Goiffon* (Student Paper)

“Radiation-Induced Charge Trapping in Shallow Trench Isolations of FinFETs,” by *S. Bonaldo, T. Wallace, H. Barnaby, G. Borghello, G. Terzo, F. Faccio, D. Fleetwood, S. Mattiazzo, M. Bagatin, A. Paccagnella, and S. Gerardin*

“SEU Cross-Sections at High Frequencies for RHBD Flip Flop Designs at the 5-nm Bulk FinFET Node,” by *Y. Xiong, N. Pieper, Y. Qian, S. Wodzro, B. Narasimham, R. Fung, S.-J. Wen, and B. Bhuvu* (Student paper)

“Depth Dependence of Neutron-Induced Errors in 3D NAND Floating Gate Cells,” by *S. Gerardin, M. Bagatin, A. Paccagnella, S. Beltrami, A. Benvenuti, and C. Cazzaniga*

“Radiation Environment in the Large Hadron Collider During the 2022 Restart and Related RHA Implications,” by *K. Bilko, R. Garcia Alia, Y. Aguiar, S. Danzeca, D. Di Francesca, S. Girard, D. Ricci, M. Sebban, S. Gilardoni, and S. Uznanski* (Student paper)

“Ultra-Large Silicon Solid-State Detector for Characterizing Low-Intensity Radiation Environments,” by *K. Bilko, R. Garcia Alia, M. S. Barbero, M. Cecchetto, C. Champagne-Bélanger, M. Brucoli, S. Danzeca, A. Hands, S. Girard, M. Sebban, P. Martin-Holgado, Y. Garcia, A. Romero-Maestre, and M. Widorski* (Student paper)

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On behalf of the NSREC 2023 Awards Committee, I would like to congratulate all the winning authors as well as all the authors of the nominated finalist papers. In addition, I would like to thank all of the members of this year’s Awards Committee for their dedication and hard work in selecting and evaluating the candidate papers.

JULIEN MEKKI, *Chair*
 CNES

REFERENCES

- [1] D. M. Fleetwood, “Citation impact of outstanding conference papers of the IEEE Nuclear and Space Radiation Effects Conference,” *IEEE Trans. Nucl. Sci.*, vol. 68, no. 3, pp. 325-337, Mar. 2021.