

2022 IEEE Nuclear and Space Radiation Effects Conference Awards: Comments by the Chair

ON BEHALF of the Committee, I am pleased to announce the 2022 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 a second paper received evaluations well above those of the remaining papers. Accordingly, it was decided to award a best paper and a meritorious paper for NSREC 2022. The Outstanding Student Paper was the highest-ranking finalist paper first authored and presented by a student. The Outstanding Data Workshop paper was judged on the basis of the quality and impact of the poster at NSREC. The award recipients include:

Outstanding Conference Paper

“Radiation-Induced Faults Generation and Propagation in Quantum Bits and Quantum Circuits,” by *D. Oliveira, E. Auden, and P. Rech*

Meritorious Conference Paper

“Fragmented High-Energy Heavy Ion Beams for Electronics Testing,” by *R. Garcia Alia, K. Bilko, F. Cerutti, A. Coronetti, N. Emriskova, L. Esposito, F. Salvat Pujol, A. Waets, S. Girard, F. Saigné, M. Durante, C. Schuy, and T. Wagner*

Outstanding Student Paper

“Single Event Upset Cross-Section Trends for D-FFs at the 5-nm and 7-nm Bulk FinFET Technology Nodes,” by *Y. Xiong, N. Pieper, A. Feeley, B. Narasimham, D. Ball, and B. Bhuvu*

Outstanding Data Workshop Presentation

“A Heavy-Ion Single-Event Effects Test Facility at Michigan State University,” by *S. Lidia, T. Glasmacher, S. Kim, G. Machicoane, P. Ostroumov, and A. Stolz*

The 2022 conference was the first in-person conference since 2019. 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 five 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, nine presentations were selected as candidates for the Outstanding Conference Paper Award. In addition, evaluations of the Data Workshop papers were discussed and the Outstanding Data Workshop Presentation was 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 six 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:

“Single Event Effects in 3D NAND Flash Memory Cells With Replacement Gate Technology,” by *M. Bagatin, S. Gerardin, A. Paccagnella, A. Costantino, V. Ferlet-Cavrois, A. Pesce, and S. Beltram*

“Towards Predicting Single-Event Transients in an Operational Amplifier Using a Quasi-Bessel Beam Pulsed-Laser Approach,” by *J. Hales, A. Ildefonso, S. Buchner, A. Khachatrian, G. Allen, and D. McMorro*

“Total-Ionizing-Dose Effects and Low-Frequency Noise in N-Type Carbon Nanotube Field-Effect Transistors With HfO₂ Gate Dielectrics,” by *P. K. Darmawi-Iskandar, A. M. Aaron, E. X. Zhang, B. L. Bhuvu, J. S. Kauppila, J. L. Davidson, M. L. Alles, D. M. Fleetwood, and L. W. Massengill* (Student Paper).

“Design, Annealing, and Electric Field Effects on Proton and Gamma Irradiated MWIR HgCdTe Focal Plane Arrays,” by *S. Dinand, N. Baier, E. de Borniol, C. Durnez, V. Goiffon, O. Gravrand, S. Rizzolo, O. Saint-Pé, and C. Virmontois* (Student Paper).

“Towards an Embedded and Distributed Optical Fiber-Based Dosimeter for Space Applications,” by *A. Meyer, A. Morana, L. Weninger, N. Balcon, G. Mélin, J. Mekki, T. Robin, A. Champavère, F. Saigné, J. Boch, T. Maraine, A. Ait-Ali-Saïd, E. Marin, Y. Ouerdane, A. Boukenter, and S. Girard*.

“Vertical Integration of Physics-Based Radiation Models in a Hierarchical Integrated Circuit Design Flow,” by *J. S. Kauppila, D. S. Vibbert, K. M. Warren, D. R. Ball, T. D. Haeffner, S. T. Vibbert, J. V. D’Amico, A. C. Watkins, E. X. Zhang, C. J. Moyers, A. L. Sternberg, and L. W. Massengill*.

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On behalf of the NSREC 2022 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.

SARAH ARMSTRONG, *Chair*
NSWC Crane

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.