

ANNOUNCEMENT and FIRST CALL FOR PAPERS



NSREC 2023



2023 IEEE NUCLEAR AND SPACE RADIATION EFFECTS CONFERENCE Short Course and Radiation Effects Data Workshop

July 24-28, 2023

Sheraton Kansas City Hotel at Crown Center
Kansas City, Missouri

www.nsrec.com

Sponsored By

IEEE/NPSS Radiation Effects Committee

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You are cordially invited to attend the 2023 IEEE Nuclear and Space Radiation Effects Conference to be held July 24-28, 2023 at the Sheraton Kansas City Hotel at Crown Center, Kansas City, Missouri. The conference features a technical program consisting of eight to ten technical sessions of contributed papers describing the latest observations in radiation effects, a Short Course on radiation effects issues, a Radiation Effects Data Workshop, and an Industrial Exhibit. The technical program includes oral and poster sessions.

Papers on nuclear and space radiation effects on electronic and photonic materials, devices, circuits, sensors and systems, as well as semiconductor processing technology and design techniques for producing radiation-tolerant (hardened) devices and integrated circuits, will be presented at this meeting of engineers, scientists, and managers. International participation is strongly encouraged.

We are soliciting papers describing significant new findings in the following or related areas:

Basic Mechanisms of Radiation Effects in Electronic Materials and Devices

- Single-Event Charge Collection Phenomena and Mechanisms
- Ionizing Radiation Effects
- Displacement Damage
- Radiation Transport, Energy Deposition, and Dosimetry
- Materials and Device Effects
- Processing-Induced Radiation Effects

Hardness Assurance Covering Piece Parts, Systems, and Testing Approaches

- New Modeling and Testing Techniques, Guidelines, and Hardness Assurance Methodologies
- Unique Radiation Exposure Facilities, Test Facility Developments, Novel Instrumentation Methods
- Dosimetry

Radiation Effects on Electronic and Photonic Devices, Circuits, and Systems

- Single Event Effects, Total Dose, and Displacement Damage
- MOS, Bipolar, and Advanced Technologies
- Systems on a Chip, GPUs, FPGAs, Microprocessors, and Neuromorphic Devices
- Isolation Technologies, such as SOI and SOS
- Methods for Hardened Design and Manufacturing
- Modeling and Hardening of Devices and Circuits
- Cryogenic or High Temperature Effects
- Novel Device Structures, such as MEMS and Nanotechnologies
- Emerging Modeling and Experimental Techniques for Hardening Systems

Space, Atmospheric, and Terrestrial Radiation Effects

- Characterization and Modeling of Radiation Environments
- Space Weather Events and Effects
- Spacecraft Surface and Internal Charging
- Predicting and Verifying Soft Error Rates (SER)

New Developments of Interest to the Radiation Effects Community

PAPER SUMMARY DEADLINE: FEBRUARY 3, 2023

PROCEDURE FOR SUBMITTING SUMMARIES

Authors must conform to the following requirements:

1. Prepare a single Adobe Acrobat file consisting of a cover page and an informative two to four page summary describing results appropriate for 12-minute oral or poster presentation. The cover page must provide an abstract no longer than 35 words, the title, name and company affiliation of the authors, and company address (city, state, country). Identify the author presenting the paper and provide telephone, and email address. The summary must include sufficient detail about the work to permit a meaningful technical review. In the summary, clearly indicate (a) the purpose of your work, (b) significant new results with supporting technical material, and (c) how your work advances the state of the art. Show key references to other related work. The summary must be no less than two and no more than four pages in length, including figures and tables. All figures and tables must be large enough to be clearly read. Note that this is more than an abstract, but do not exceed four pages.
2. Prepare your summary in single-column or IEEE TNS standard two-column format, using 11 point or greater font size, formatted for either U.S. Standard (8.5 x 11 inch) or A4 (21 x 29.7 cm) page layout, with 1 inch (2.5 cm) margins on all four sides.
3. Obtain all corporate, sponsor, and government approvals and releases necessary for presenting your paper at an open attendance international meeting.
4. Summary submission is electronic only, through www.nsrec.com. The submission process consists of entering the paper title, author(s) and affiliation(s), an abstract no longer than 35 words, and uploading the summary. Authors are prompted to state their preference for presentation (oral, poster, or data workshop poster) and for session. Details of the submission process may be found at www.nsrec.com. The final category of all papers will be determined by the Technical Program Committee, which is responsible for selecting final papers from initial submissions.

**Summaries must be received
by February 3, 2023**

**Detailed submission and
formatting instructions
will be available after
December 1, 2022
at www.nsrec.com**

Papers accepted for oral or poster presentation at the technical program are expected to be submitted for publication in the IEEE Transactions on Nuclear Science (January 2024). Selection for this issue will be based on a separate submission of a complete paper. These papers will be subject to the standard full peer review given all papers submitted to the IEEE Transactions on Nuclear Science. Further information will be sent to prospective authors upon acceptance of their NSREC summary. It is not necessary to be an IEEE member to present a paper or attend the NSREC. However, we encourage IEEE and NPSS membership of all NSREC participants.

RADIATION EFFECTS DATA WORKSHOP

The Radiation Effects Data Workshop is a forum for papers on radiation effects data on electronic devices and systems. Workshop papers are intended to provide radiation response data to scientists and engineers who use electronic devices in a radiation environment, and for designers of radiation-hardened systems. Papers describing new simulation techniques and results, or radiation facilities are also welcomed. **The procedure for submitting a summary to the Workshop is identical to the procedure for submitting NSREC summaries.** Radiation Effects Data Workshop papers will be published in a Workshop Record and are not candidates for publication in the Conference issue of the *IEEE Transactions on Nuclear Science*.

KANSAS CITY, MISSOURI

The location for NSREC 2023 will be the Sheraton Kansas City Hotel at Crown Center in the Crown Center complex in Kansas City, Missouri. The home of swing and bebop for some, "The City of Fountains" to others, Kansas City is different things to different people. Music enthusiasts are drawn to the jazz clubs and old haunts of famous musicians such as Charlie Parker and Count Basie. With more fountains than Rome, there are ample opportunities for scenic "strolling from fountain to fountain." Stop along the way to discover interesting neighborhoods and browse through eclectic shops.

Families are particularly attracted to the city because of its child-friendly events and venues. Science City features hands-on exhibits, while the zoo houses impressive African and Australian exhibits plus an IMAX Theater. The city's museums cover everything from the history of jazz music to a celebration of African American baseball players and the National World War I Museum and Memorial. Kansas City spans across the Missouri and Kansas state lines and came to prominence as a port for the Missouri and Kansas Rivers. Today, Kansas City is a burgeoning metropolis with activities and attractions for visitors of all ages and interests. Come and join us for NSREC 2023 and experience it for yourself.



Courtesy of Visit KC