

## Helpful Information for Authors of RE Manuscripts for the IEEE TNS

This document is intended to assist both new and experienced authors in avoiding common issues needing correction in Radiation Effects manuscripts submitted to the TNS. Taking appropriate actions during the submission and revision processes should help to streamline and simplify the reviewing and revision processes significantly. Thanks for your attention to these important details!

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### Manuscript Preparation and Submission

1. The TNS generally does not accept simulation papers that do not include experimental validation of the post-irradiation responses, or that provides verification of the simulation methodology via an approach that similarly takes into account the parasitic elements that often dominate radiation response but are not present in pre-irradiation parametric measurements and are challenging for simulation and modeling tools to capture with calibration to actual radiation test results.
2. The TNS generally does not accept papers for review that show results of devices that are exposed to *ionizing* radiation without a defined bias, e.g., statically or actively biased, or at a minimum with all pins grounded. This is because without control of the bias conditions, uncontrolled fields and charging up of surfaces often leads to results that are not characteristic of the environment, irreproducible or misleading results, and/or static discharge induced damage to devices.
3. Please follow the TNS format template carefully and include author affiliations, contact, and funding information in the mandatory footnote, which should be placed at the lower left of p. 1. See examples in the journal.
4. The abstract should be 5-7 sentences that clearly summarize the major findings of the paper and their significance. Detailed introductory material should not be included.
5. Please check your PDF copy carefully, to ensure there are no missing fonts leading to garbled text, broken links to figures or references, or other issues. Please make the draft look more like a completed paper than a work in progress – parts of figures and captions should not break across columns, etc. There should not be unused white space, etc. If and when the paper may ultimately be accepted, it will be published in the early access version of the journal, and it needs to look like a completed paper.
6. If line numbers are enabled in a submitted manuscript, please restart the line numbering on each page. Be sure to check the generated PDF manuscript to ensure

that the numbers are clear and do not interfere with text. **Do not enable or include line numbers in the final manuscript submission for accepted papers!**

7. Be sure that all figures are large enough to be seen easily without magnification in two-column format, and that all symbols, labels, and captions are large enough and dark enough to be clearly visible. Do not separate metric prefixes from units on graphs – the full unit should be in the X and Y axes titles. Enclose data plots in a full box – do not just show the lower X axis and left-hand Y axis. Do not duplicate information shown in the caption and figure legend. It is strongly recommended to use clear tick marks to denote axis scaling than to use gridlines. Do not put a box around the figure legend.
8. Please use periods to denote decimals and not commas.
9. Please include a space between all numbers and their units.
10. The correct abbreviation for hours is “h,” and the correct abbreviation for seconds is “s.”
11. Please do not use E(e) notation to denote exponentiation in the text, tables, or figures. In all cases, please show 10 raised to the appropriate power.
12. For all doses, please be sure to indicate the material of reference, e.g., rad(Si) or rad(SiO<sub>2</sub>). There is no space between between rad and the parenthesis.
13. Please do not make any explicit claims of novelty in the manuscript, e.g., “for the first time ...” , “a novel approach ...” These are neither necessary nor appropriate. All manuscripts submitted to the TNS are expected to include evidence of advances of the state of the art, which should be clear to readers based on the analysis, discussion, and comparisons with the literature.
14. Please avoid the use of the term “master-slave” in discussions of circuit design. This can be offensive to some readers. The currently preferred term is “primary-secondary.”
15. Special note for manuscripts on total-ionizing-dose effects on SiC MOSFETs: Despite its erroneous use for SiC devices in several literature papers, the midgap charge separation method is only applicable to Si MOS transistors. The assumption of midgap charge neutrality required for this technique to be applicable has not been shown for SiC MOS devices, and midgap current is inaccessibly small for SiC. This contrasts with Si, where midgap surface potential usually corresponds to currents of order 0.1 pA. It is possible to use the subthreshold stretchout method to provide 1st order estimates of interface face trap densities over a very narrow range of the band gap. However, in SiC devices, border traps and charge lateral nonuniformities often contribute more significantly. See, for example: A. J. Lelis *et al.*, "Time Dependence of Bias-Stress-Induced SiC MOSFET Threshold-Voltage Instability Measurements," *IEEE Trans. Electron Devices*, vol. 55, no. 8, pp. 1835-1840, Aug. 2008, as well as Section II of D. M. Fleetwood, "Effects of Bias and Temperature on Interface-Trap Annealing in MOS and Linear Bipolar Devices," *IEEE Trans. Nucl. Sci.*, vol. 69, no. 3, pp. 587-608, March 2022.

## Reference Formatting

16. Be sure that each reference is accurate, complete, and fully compliant with TNS format requirements. Provide accepted abbreviations for journal titles, and not shorthand acronyms. This is an example of a reference with five co-authors for a journal that uses sequential page numbers: D. M. Fleetwood, E. X. Zhang, R. D. Schrimpf, S. T. Pantelides, and S. Bonaldo, "Effects of interface traps and hydrogen on the low-frequency noise of irradiated MOS devices," *IEEE Trans. Nucl. Sci.*, vol. 71, no. 4, pp. 555-568, Apr. 2024.
17. For journal articles, please be sure to include the month of publication as well as the year of publication.
18. For journals and proceedings that use unique electronic manuscript identifiers (article sequence numbers) instead of sequential page numbers, please show as Art. no., instead of p. or pp. The article number goes after the year of publication. This contrasts with page numbers (no.), which are shown between the issue number and month of publication. This is an example, for a paper with more than six authors, for which the "et al." format is allowed; with six or fewer authors, please provide the entire author list instead: S. Musibau *et al.*, "Low-frequency noise characteristics of waveguide-integrated lateral and vertical Ge-on-Si *p-i-n* photodiodes," *J. Appl. Phys.*, vol. 138, no. 15, Oct. 2025, Art. no. 155706.
19. Please be sure to show the location and dates of all conference and workshop proceedings papers. For proceedings articles without page numbers or showing pp. 1-n, please search on the string "table of contents [year] [name of conference]" to find the actual, non-trivial page or article numbers. Often these are found at proceedings.com, which is the licensed publisher of IEEE proceedings. Note that the IEEE "cite this" button is often unreliable for proceedings page numbers, and should not be considered accurate when showing 1-n. The published proceedings volume takes precedence. Provide the accepted abbreviation for conference titles – usually an acronym is not appropriate, unless it is well known to the community, e.g., RADECS. Here is an example from the RADECS 2016 conference, for a paper with more than six authors; if there were six or fewer authors, all would need to be listed: R. Jiang *et al.*, "Total ionizing dose effects in passivated and unpassivated AlGaIn/GaN HEMTs," Proc. RADECS 2016, Bremen, Germany, Sept. 19-23, 2016, pp. 11-14. This is an example for conferences that use "paper numbers" instead of sequential page numbers: X. Qin *et al.*, "Development of high resolution TDC implemented in radiation tolerant FPGAs for aerospace application," *Proc. 2012 18th IEEE-NPSS Real Time Conference*, Berkeley, CA, USA, June 11-15, 2012, pp. PS3-38.1- PS3-38.5.

20. Only the first word, proper nouns, acronyms, and symbols should be capitalized in the titles of cited articles in the reference list. Do be sure that acronyms, subscripts, and superscripts are correctly shown.

### **Manuscript Revisions**

21. Please be sure that all aspects of the revised manuscript still comply with the above requirements for submitted manuscripts.
22. Please be sure that any important information for readers to understand the results, analysis, and implications of the work that is disclosed in the responses to reviewers is also included (usually in abridged format) in the modified text.
23. Please be sure to show all significant changes to the text (and references) in revised manuscripts submitted following review. The most effective way to do this is by using differently colored font – e.g., red. Strikethroughs are not required to be shown for deleted text in the markup of the revised copy. An MS Word “Tracked Changes” document is usually not possible for reviewers and editors to use constructively.
24. Please do not include any past versions of the manuscript with your newly revised version. These are already available within the system, and only confuse reviewers and editors.
25. Please be sure to respond to all comments from the associate and senior editor, in addition to the reviewer comments.