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Related Faculty:

Jaydeep Kulkarni [2]

Thursday, May 23, 2019

Prof. Jaydeep Kulkarni [3] of Texas ECE and collaborators from Vanderbilt University recently received a grant from the Department of Defense (DoD) and the US Navy for his work on "Evaluating Radiation Performance of PTM-based CMOS Circuits."

In this research, Kulkarni, the principal investigator along with his collaborator from Vanderbilt University Prof. Bharat Bhuvra, plans to explore novel Phase Transition Materials (PTM) to improve the radiation hardness of CMOS logic and memory circuits. PTM devices exhibit abrupt resistance change under the influence of external bias. Compared to earlier approaches, the proposed PTM based circuits are realized using back end of the line (BEOL) integration of PTM devices onto baseline CMOS technology without incurring active Silicon area growth. If successful, this research can significantly improve the radiation tolerance of critical DoD electronic systems with minimal power and performance impact.

Jaydeep Kulkarni is an assistant professor and holds the AMD endowed chair in computer engineering in the Department of Electrical and Computer Engineering at The University of Texas at Austin. He has filed 35 patents, published 2 book chapters, and 75 papers in referred journals and conferences. His research is focused on energy efficient digital, memory, and power management circuits, emerging nanotechnology applications, and data intensive hardware accelerators. He received 2008 Intel Foundation Ph.D. fellowship award, 2010 Purdue school of ECE outstanding doctoral dissertation award, 2015 IEEE Transactions on VLSI systems best paper award, 2015 SRC outstanding industrial liaison award.



Source URL: <http://www.mrc.utexas.edu/news/prof-jaydeep-kulkarni-receives-dod-grant-work-evaluating-radiation-performance-ptm-based-cmos>

Links

[1] <http://www.mrc.utexas.edu/sites/mrc.utexas.edu/files/images/news/kulkarni-portrait.png>

[2] <http://www.mrc.utexas.edu/people/faculty/jaydeep-kulkarni>

[3] <http://www.ece.utexas.edu/people/faculty/jaydeep-kulkarni>