

IEEE JOURNAL ON EMERGING AND SELECTED TOPICS IN CIRCUITS AND SYSTEMS



WWW.IEEE-CAS.ORG

A PUBLICATION OF THE IEEE CIRCUITS AND SYSTEMS SOCIETY

JUNE 2016

VOLUME 6

NUMBER 2

IJESLY

(ISSN 2156-3357)

EMERGING MEMORIES—TECHNOLOGY, ARCHITECTURE, AND APPLICATIONS—FIRST ISSUE

GUEST EDITORIAL

Emerging Memories—Technology, Architecture, and Applications (First Issue)	105
..... <i>S. Ghosh, R. V. Joshi, D. Somasekhar, and X. Li</i>	

PAPERS

An Overview of Nonvolatile Emerging Memories—Spintronics for Working Memories	109
..... <i>T. Endoh, H. Koike, S. Ikeda, T. Hanyu, and H. Ohno</i>	
Comprehensive Scaling Analysis of Current Induced Switching in Magnetic Memories Based on In-Plane and Perpendicular Anisotropies	120
..... <i>A. Jaiswal, X. Fong, and K. Roy</i>	
Comparative Evaluation of Spin-Transfer-Torque and Magnetoelectric Random Access Memory	134
..... <i>S. Wang, H. Lee, F. Ebrahimi, P. K. Amiri, K. L. Wang, and P. Gupta</i>	
Recent Progress in Phase-Change Memory Technology	146
..... <i>G. W. Burr, M. J. Brightsky, A. Sebastian, H.-Y. Cheng, J.-Y. Wu, S. Kim, N. E. Sosa, N. Papandreou, H.-L. Lung, H. Pozidis, E. Eleftheriou, and C. H. Lam</i>	
Self Current Limiting MgO ReRAM Devices for Low-Power Non-Volatile Memory Applications	163
..... <i>W. Lu, W. Chen, Y. Li, and R. Jha</i>	
Bipolar Resistive RAM Based on HfO ₂ : Physics, Compact Modeling, and Variability Control	171
..... <i>F. M. Puglisi, L. Larcher, A. Padovani, and P. Pavan</i>	
Exploration of Si/Ge Tunnel FET Bit Cells for Ultra-low Power Embedded Memory	185
..... <i>M. F. Amir, A. R. Trivedi, and S. Mukhopadhyay</i>	

(Contents Continued on Back Cover)



(Contents Continued from Front Cover)

Neuromorphic Computing Based on Emerging Memory Technologies	<i>B. Rajendran and F. Alibart</i>	198
Spintronic Memristor as Interface Between DNA and Solid State Devices		
..... <i>J. Yang, Z. Sun, X. Wang, Y. Chen, and H. Li</i>		212
Associative Memristive Memory for Approximate Computing in GPUs		
..... <i>A. Ghofrani, A. Rahimi, M. A. Lastras-Montaño, L. Benini, R. K. Gupta, and K.-T. Cheng</i>		222
Leveraging Stochastic Memristor Devices in Neuromorphic Hardware Systems		
..... <i>M. Hu, Y. Wang, W. Wen, Y. Wang, and H. Li</i>		235
Low-Power MCU With Embedded ReRAM Buffers as Sensor Hub for IoT Applications		
..... <i>T.-K. Chien, L.-Y. Chiou, S.-S. Sheu, J.-C. Lin, C.-C. Lee, T.-K. Ku, M.-J. Tsai, and C.-I. Wu</i>		247
