

THEORETICAL AND CONDENSED MATTER PHYSICS

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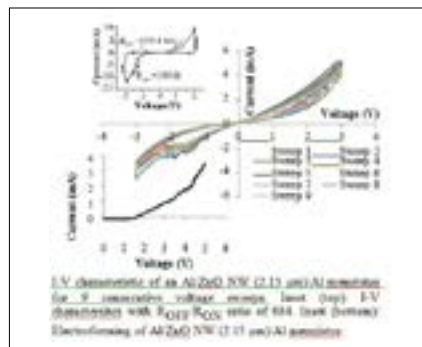
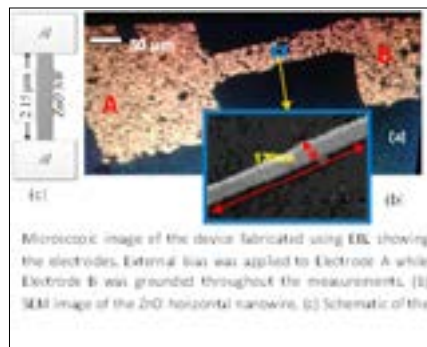


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Memristors – A new technology paradigm

A general overview of the state-of-the-art in memristor research and development including neuromorphic computing and learning will be provided. This will follow discussion of the underlying physical/chemical processes governing the operation of this class of devices. Discussions on modeling will include DC, transients and RF operations. Material growth and fabrication of memristors emphasizing ZnO as a material platform will be presented. DC and RF measurements will be compared to theoretical results to facilitate material identification for specific outcomes. System level application will be demonstrated with an experimental realization of one-bit PUF.



Biography

Mehdi Anwar currently serves as a Full Professor in the Electrical and Computer Engineering department. As a Jefferson Science Fellow he served as Special Adviser for Technology Transfer and Innovation in the office of Intellectual Property Enforcement, Economic Bureau, U. S. Department of State. At present, Dr. Anwar is assisting the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States to stand up the newly established United Nations Technology Bank for the Least Developed Countries. Dr. Anwar has served as the Associate Dean for Research & Graduate Education, School of Engineering, (2006 -2009), founding Director of the Department of Homeland Security Center of Excellence (2007-2009), interim Director of the Connecticut Global Fuel Cell Center (2007-2009) and interim Department Head of ECE (1999-2001). He was an IPA (July '04 – August '05) at the Sensors Directorate, Hanscom Air Force Base, working on advanced metamorphic HEMTs and GaN-based HFETs pioneering the design of low noise antimony-based-compound-semiconductor (ABCS) HEMTs. He has presented over 40 plenary and invited talks at national/international conferences, published over 240 research articles and book chapters and edited 9 volumes. Dr. Anwar served as an Editor of IEEE JEDS and served as an Editor of the IEEE Transactions on Electron Devices (2001 – 2010); Guest Editor of Optical Engineering; conference chair of Terahertz Physics, Devices and Systems, at SPIE DSS/ Sensing (2009-2016).

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