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Zn_{1-x}MgxO nanostructures in advanced electronics and photonics

Mehdi Anwar

University of Connecticut, USA

Zinc oxide (ZnO) and its associated nanostructures are pursued applications in advanced electronics, UV detectors, chemical sensors and source for white light, to name a few. The research group at the University of Connecticut has made great strides in the growth of both Zn_{1-x}MgxO nanowires and nanorods to demonstrate highly efficient UV solar blind detectors, chemical sensors and recently material implication logic, physically unclonable functions using ZnO based memristors. In this talk, we will present a comparison of the different growth techniques for the growth of Zn_{1-x}MgxO nanorods and nanowires. ZnO-based memristors along with DC and RF measurements will be presented. The system-level application will be demonstrated with the experimental realization of one-bit PUF.

a.anwar@uconn.edu