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Instituto de Energías
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SEMINARIO DEL IER

“LARGE AREA SOLID-STATE RADIATION DETECTORS ”

Prof. Manuel Quevedo received his B.Sc degree in Chemistry at the University of Sonora, an MS degree in Materials Science at The Saltillo Institute of Science and Technology and his Ph.D. from the University of North Texas (2002). In 2002, Dr. Quevedo joined Texas Instruments as member of the technical staff where he developed high tech materials and devices. While at Texas Instruments, Dr. Quevedo was appointed Texas Instruments assignee at International Sematech where he worked with other companies (Intel, IBM, Motorola, Samsung, AMD, etc.) developing alternate materials for nano devices. In 2010 Dr. Quevedo joined the Materials Science and Engineering Faculty at the University of Texas at Dallas as Associate Professor. He was promoted to tenured Full professor in 2014. Dr. Quevedo is member of the scientific board of Nanoholdings LLC and CTO of WAND LLC. Dr. Quevedo has published more than 230 papers, 2 book chapters, and holds 12 US patents with 8 more pending. His current research includes nanostructured materials and devices for flexible electronics, large area sensors and energy harvesting. He currently directs a research group of about 25 members.

The development of low temperature device technologies that have enabled flexible displays also present opportunities for large area electronics and flexible integrated systems. In this talk, our efforts to develop novel CMOS integration schemes, circuits, memory, sensors as well as novel contacts, dielectrics and semiconductors for flexible and large area electronics are presented. In particular, we discuss fundamental materials properties including crystalline structure, interfacial reactions, doping, etc. defining device performance and reliability of inorganic oxides, II-VI materials and hybrid perovskites defining the use of these materials as radiation sensors. Some of the materials investigated include ZnO, IGZO, ZnO:N, SnO, SnOx CdS, ZnS and CdTe, and ABX₃. Materials characterization methods including RBS, XPS, XRD, etc. are used to analyze materials deposited by pulsed laser deposition, chemical bath deposition and inkjet printing. Finally, we will demonstrate an integrated neutron sensor fully fabricated at UT-Dallas that includes wireless communication to a mobile device.

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