FIU Engineering & Computing
Electrical and Computer Engineering

Electrical and Computer Engineering Lecture Series

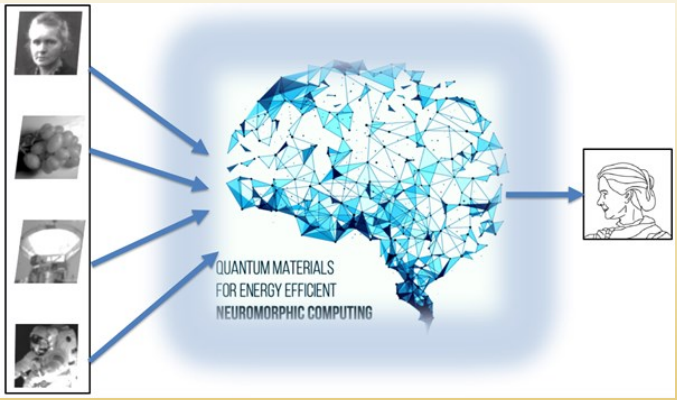
Neuromorphic Computing

Dr. Ivan K. Schuller
Distinguished Professor
Physics Department, UC San Diego

March 31st, 2022
3:00 PM — 4:00 PM
EC 3930

Register to Attend Via Zoom: https://bit.ly/38845it
Meeting ID: 985 6631 2510
Passcode: bx901L

Abstract: Data manipulation (memory, computation, communications, data mining, sensing) in its many forms drives our modern civilization. The continuous increase in hardware packing density and phenomenal decrease in cost (Moore's law) has been key to the development of the information revolution. This was fueled by the discovery of revolutionary scientific concepts such as quantum mechanics, coupled with the development of quantum materials and devices. We are presently facing a similar situation in which new hardware concepts, based on transformative scientific concepts, are needed. This includes reevaluation of data manipulation concepts for software and systems and by necessity will require development of novel hardware including new device and materials concepts. I will describe the first steps using quantum materials to "develop a machine that works like the brain".



Biography: Schuller, a member of the Chilean, Spanish, Colombian and Belgian Academies has won major science and TV prizes including the American Physical Society (Wheatley, Adler), Materials Research Society (Medal, Somiya), Department of Energy (Lawrence), Department of Defense (Vannevar Bush), European (Humboldt and Lise Meitner) and Regional Emmy. His more than 550 papers and 20 patents established the field of metallic superlattices key for the start of Spintronics, determined the structure of YBCO high temperature superconductor, and established the phenomenology of many hybrid heterostructures. His recent basic research on the properties of quantum-materials has direct relevance for Neuromorphic Computing and Sensors. He was recently elected a fellow of the American Academy of Arts and Sciences.