

Abstract Submitted
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Development of a Fabrication Path for Au-Organothioli-Carbon Nanotube Molecular Junctions JASON MOSCATELLO, Michigan Tech, YOKE KHIN YAP RESEARCH LABORATORY TEAM¹ — Silicon electronics is at the scaling limit and new approaches are necessary. Nanomaterials have significant promise in addressing this problem and each has its own potentially useful properties; yet making the material is only the first step in harnessing those properties. Transitioning from developing materials to integrating them into devices is no small endeavor - placement, wiring, etc. are nontrivial on the nanoscale. This talk details work done at Michigan Tech developing a fabrication process for Molecular Electronic Junctions (MEJs). The goal is to study the lifetime of MEJs containing strong bonds because short lifetime is the largest limiting factor in many MEJs. It is important that the physics studied remains accurate even if the size is scaled down and the MEJs are arranged into arrays - two things that are necessary for MEJs to be used commercially. In addition the process is widely usable, since it only utilizes inexpensive and/or common processes (e.g. dielectrophoresis and photolithography). An overview of the fabrication process will be detailed, along with carbon nanotube (top electrode) placement by dielectrophoresis, and initial results.

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