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SWNTs hold considerable promise for use in efficient energy storage (e.g., gas and battery applications), nanoscale electronics (e.g., one-dimensional quantum wires in nanocircuitry; nanotransistors), optical computing, nanoscale electromechanical systems (i.e., NEMS), highly sensitive, highly selective sensors (e.g., both chemical and biological), novel actuators, multifunctional materials (e.g., lightweight, high strength, energy efficient, electrically conducting, etc.) and advanced instrumentation (e.g., AFM, STM and CFM probe tips; nanobalance). Current technologies to manufacture carbon nanotubes produce a plethora of tubes with myriad different shapes, sizes and properties. The scientific community will need access to uniform SWNTs in order to fully exploit their advantageous properties in the technologies cited above. Professor Glen Miller of the Chemistry Department and Materials Science Program has funding from both the Army and NSF for separate projects aimed at developing low temperature, selective chemistries for the synthesis of single-walled nanotubular compounds (SWNCs). Professor Miller’s approaches are designed to prepare batches of SWNCs with uniform but tunable dimensions and properties.