

Dr. Toby Nelson

Department of Chemistry

Dr. Toby L. Nelson obtained his bachelor's degree in chemistry from Francis Marion University in 2001. After graduation, he joined IRIX Pharmaceuticals as a chemist. He then worked at the University of South Carolina where he was awarded his doctoral degree in 2007. From then until July 2011, he designed and synthesized conducting plastics for printable electronics as a postdoctoral research associate at Carnegie Mellon University. Dr. Nelson joined the OSU chemistry faculty in September 2011 where he will design and synthesize conducting plastics for sustainable energy.

Dr. Nelson has presented at several national conferences, including American Chemical Society, Materials Research Society and Gordon Research Conference. His research has been published in top peer-reviewed journals such as the *Journal of American Chemical Society* and highlighted in *Science and Chemical & Engineering News*.

Awards received include: UNCF•Merck Postdoctoral Science Research Fellowship, IRIX Pharmaceuticals Award, E. I. Dupont Fellowship Award, Alfred P. Sloan Scholarship, Bouknight Teaching Award, SREB Dissertation Year Fellowship Award and Francis Marion University Chemistry Award.

His research interests include the design and synthesis of novel electrically conducting polymers for supramolecular materials, structure-property relationships and sustainable energy. The conducting plastics will be utilized as the active components in lightweight, inexpensive and flexible polymers solar cells, rechargeable batteries and thermoelectrics. These plastic solar cells (convert light energy into electricity) and organic thermoelectrics (convert heat energy into electricity) are both mechanisms for creating electricity from renewable and/or recyclable energy sources. The plastic rechargeable batteries will be implemented to store the energy created by the above avenues.



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