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Department of Chemistry

Student Seminar Series

9:45 a.m. Tuesday, April 12 • 331 Smith Hall

Assistant Professor

Malika Jeffries-EL

Department of Chemistry
Iowa State University

*Teaching Old Polymers New Tricks:
Novel Conjugated Materials Based
on Benzobisazoles*

Website:

<http://www.jeffries-el.chem.iastate.edu/mje/homepage.htm>

Abstract

Polybenzobisazoles possess many exceptional electronic, optical and thermal properties and thus are ideally suited for diverse organic semiconducting applications, yet these materials have found limited utility due their lack of solubility in organic solvents. A promising approach for the synthesis of soluble organic semiconductors is the combination of the benzobisazole moiety with substituted aromatic rings. However, the harsh conditions required for the synthesis of benzobisazoles have prevented the synthesis of benzobisazoles bearing reactive handles. Typically, benzobisazoles are synthesized via condensation reactions, in acidic mediums at high temperatures. Recently, we have developed a mild approach for the synthesis of benzobisoxazoles resulting in several building blocks suitable for designing new polymers. The utility of these compounds for the synthesis of novel, solution processable polybenzobisazoles and the electronic and physical properties of these polymers will be presented.

Malika Jeffries-EL, assistant professor of organic and polymer chemistry at Iowa State University, received her bachelor's degree from Wellesley College in 1996 and a master's degree from George Washington University in 1999. After completing her doctorate in 2002 at George Washington University, she continued her research as a postdoctoral research fellow at Carnegie Mellon University under the direction of Professor Richard D. McCullough. She joined the faculty at Iowa State University in 2005. Jeffries-EL is a member of the American Chemical Society, Sigma Xi, and the National Organization for the Professional Advancement of Black Chemist and Chemical Engineers.



Her research interests include organic synthesis and polymer chemistry with an emphasis on macromolecular design and synthesis. Areas of interest include the synthesis of novel heterocyclic conjugated polymers, rod-coil block copolymers, and bioresponsible conjugated polymers.

Her honors and awards include Gordon Research Conferences-Carl Storm Underrepresented Minority Fellowship, National Science Foundation CAREER Award, and Lloyd N. Ferguson Young Scientist Award.