

Department of Chemistry and Molecular Biology  
Seminar  
October 15, 2009  
3:45 pm in Dunbar 152

***SYNTHESIS OF NOVEL CONJUGATED POLYMERS BASED ON BENZOBISAZOLES***

**Dr. Malika Jeffries-EL**

Department of Chemistry, Iowa State University, Ames IA 50011

**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 to 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 has 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 new approach for the synthesis of optoelectronic building blocks based on benzo[1,2-d;4,5-d'] bithiazoles (trans-BBZT), benzo[1,2-d;4,5-d'] bisoxazoles (trans-BBO) and benzo[1,2-d;5,4-d'] bisoxazoles (cis-BBO) via the Lewis acid catalyzed reaction of various orthoesters with 2,5-diamino-hydroquinone and 4,6-diaminoresorcinol respectively. In all cases the target compounds were obtained cleanly and in high yield. Subsequent transformations yield several building blocks suitable for coupling with aryl compounds via a variety of methods. The utility of these compounds as building blocks for the synthesis of novel, soluble polybenzobisazoles will be presented. The electronic and physical properties of these polymers will be discussed.