

## **CBIMMS Invited Seminar**

### **“Programmed Self-Assembly of Peptide-based Materials”**

**Vincent Conticello, PhD**

**Associate Professor  
Department of Chemistry  
Emory University**

**Monday, February 16, 2004**

**2:00 PM**

**203 Teer Building**

#### **ABSTRACT**

At the beginning of the 21st century, we are witnessing a remarkable convergence of synthetic and physical technologies with the world of molecular biology, which will provide unprecedented opportunities for the creation of novel, functional biomolecules. Biological systems display architectural complexity with hierarchical order at length scales greater than can be attained currently with synthetic systems. The complex structures of biology are formed from self-assembly of the molecular components, which are mediated through specific supramolecular interactions that are programmed into their molecular structure. The pinnacle of this process is the growth and differentiation of living cells. Over the past five decades, basic research into the structure of biological macromolecules has begun to deconvolute the structural principles that underlie the unique specificity of biological systems. While this process is far from complete, the information gleaned from these studies has enabled the scientific community to gain an understanding of the relevant physical principles that guide the self-assembly of biological systems. One can envision utilizing the same structural guidelines for the design and construction of non-native materials that display the structural specificity and unique functionality of native biomolecules. We describe our efforts towards the design, synthesis, and characterization of novel materials based on protein structures.