

# SEMINAR

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## Multifunctional Nanosized Objects Tailored for Drug Delivery Approaches in Cancer, Imaging and Device Technology

Dr. Eva M. Harth  
Vanderbilt University  
Department of Chemistry  
7330 Stevenson Center  
Station B 351822  
Nashville, TN 37235

The success of the emerging bio-nanotechnological approaches to solve cross-cutting problems in cancer relies on the sophistication of tailored nanovectors to increase the efficacy per dose of any therapeutic agent. In our approach we endow agents comprising the vector as a multifunctional, organic carrier in a bioinspired design with the ability to realize the integration of targeting units and drug molecules. The increasing demand of imaging probes correlated with efficacy testing of drug carriers has opened up a new playground for polymeric architectures. As a result, the encapsulation of imaging reagents, or chromophores especially in 3-D, also vitalized the investigation of electronic properties through site isolation effects of electroactive entities in well-defined nano objects. The precise correlation of molecular structures with macroscopic properties such as quantum efficiency, thermostability, photostability and processability, is one of the most important, but as yet not fully resolved challenges in the investigation and exploitation of polymeric materials.