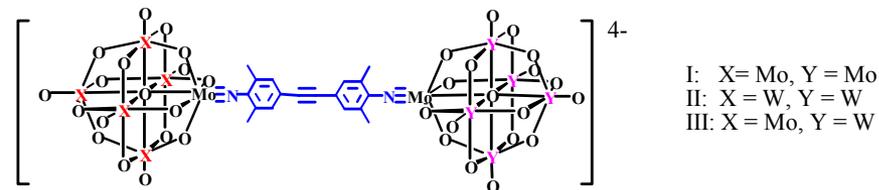


Electrically Active Organic-Inorganic Hybrid Materials

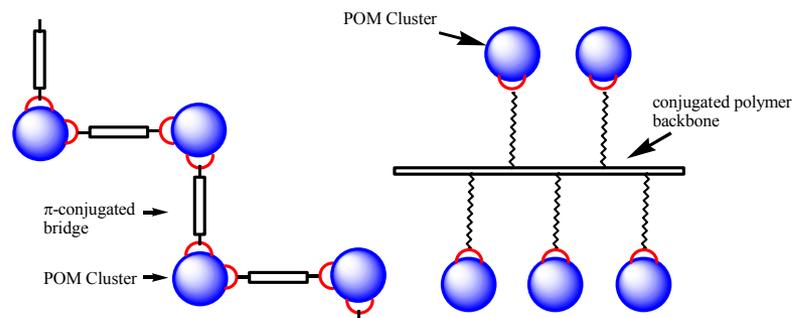
Zhonghua Peng, University of Missouri-Kansas City, DMR-0134032

Developing new materials and exploring their possible new properties continue to be the driving force for materials research. Here we present our discovery of new chemistry and new strategies leading to the synthesis of a new type of molecular hybrids where polyoxometalate clusters are covalently linked with organic conjugated π -systems to realize new electrically active materials which may find important applications in photovoltaic cells and as photoconductive materials.

Angew. Chem. Int. Ed. Engl. **41**, 4129 (2002); **41**, 1566 (2002); **42**, in press (2003).



Hybrid Molecular Dumbbells linking two identical or two different clusters through a conducting bridge.



Hybrid Polymers with POM Clusters embedded in the main chain (left) or as side-chain pendants (right).

Electrically Active Organic-Inorganic Hybrid Materials

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Education:

Two high school students (Ms. La'chelle Bailey and Ms. Shelita Terrill), two undergraduate (James Nelson, Calida Cheung), three graduate students (Bubin Xu, Meng Lu, JeongHee Kang), and one postdoc (Ruiyun Guo) contributed to this work. La'Chelle was selected as a ACS college scholar in 2001 and currently enrolled at UMKC as a undergraduate student. Bubin, a distinguished dissertation fellow from UMKC, obtained his Ph. D in 2003 and is now working in a company at South Carolina. Meng is a Chancellor's Interdisciplinary Fellow at UMKC.

Outreach:

As the coordinator, the PI welcomed and showcased chemistry research to local high school students.



The PI giving presentation to high school students