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Jena Center for Soft Matter

Chemisch-Geowissenschaftliche Fakultät

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Jena, 27. August 2018

EINLADUNG

Am Montag, **3. September 2018**, spricht um **14:00 Uhr**
im Hörsaal des ZAF, Philosophenweg 7, 07743 Jena

Herr Prof. Dr. George R. Newkome

Center for Molecular Biology and Biotechnology, Florida Atlantic University, USA
(früher University of Akron, USA)

zum Thema

"Approaches to Precise One-step Macromolecular Assemblies"

Alle Interessenten sind herzlich eingeladen.

gez. Prof. Dr. Ulrich S. Schubert

Es handelt sich um eine Veranstaltung des SFB 1278 - POLYTARGET
(in Kooperation mit dem JCSM/CEEC Jena)

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Curriculum Vitae

George Newkome received his BS and PhD from Kent State University and did a postdoctorate and Princeton then became a professor at LSU, then in 1986, he joined the University of South Florida as their Vice President for Research and was named a Distinguished Research Professor in 1992. In 2001, he became the Oelschlager Professor of Science and Technology and professor of the Departments of Polymer Science and Chemistry at the University of Akron as well as their Vice President and Dean for Research and graduate studies. He recently retired and became a Research Professor at the Center for Molecular Biology and Biotechnology at Florida Atlantic University. He is a Fellow of the AAAS, Royal Society of Chemistry, Ohio Academy of Sciences, and National Academy of Inventors. He has published over 530 scholarly articles and reviews, 69 patents, and 20 scientific books and monographs.

Abstract

A research progression from the "early days" to dendritic architectures to simple metallocycles and finally then to complex, fractal-based, metallosupramacromolecular materials will be presented. The introduction of the first terpyridine-modified dendritic scaffold was followed by the synthesis and self-assembly of polyterpyridine linkers into discrete architectures. The specific control over shape, size, and transformations of these assemblies is challenging due to the inherent dynamic nature of the non-covalent interactions. Introduction of tailored multiplanar, directed polyterpyridine vertices in conjugation with a series of different metal ions gave metallosupramolecular cages with tunable conformations responding to specific stimuli, such as: concentration, temperature, and counter ions. Extending the dendritic fractal design to a new family of hybrid 3D-metallodendrimers with a cuboctahedron core has been realized, which then opens the door to new precise unimolecular micelles. Moreover, secondary hierarchical self-assembly beyond these discrete macromolecules will be discussed. Utilizing shape-tuned monomers, a series of supramolecules with a rigid triangular framework assemble into shape-complementary, highly ordered nanostructures, which open avenues to smart designer materials.

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