Between Linear and Globular: Macromolecular Nano-constructs and Their Potential Applications in “Green” Chemistry

Ivan Gitsov

The Michael M. Szwarc Polymer Research Institute and Department of Chemistry,
SUNY College of Environmental Science & Forestry, Syracuse, NY 13210, USA;
igivanov@syr.edu

The copolymers presented in this talk are hybrid macromolecules containing one, two or more perfectly branched or hyperbranched fragments incorporated at the extremities of a linear block.1,2 These materials might have a rather broad application potential ranging from biotechnology to sustained drug delivery. The seminar will focus on hybrid copolymers constructed of monodendrons, dendrimers and hyperbranched polymers that are attached at the chain ends of linear- and star-branched blocks. An example is shown on the figure below. The advantages and drawbacks of the main synthetic strategies will be discussed. The use of these nanostructured materials in the construction of novel macromolecular architectures through self-assembly and molecular recognition will be presented along with their evaluation as nano-sized reaction vessels, nano-sponges and bioreactors for “green chemistry”

References