



Vabilo na Preglov kolokvij / Invitation to the Pregl colloquium

Dr. Simon Harrison

Laboratoire de Chimie des Polymères Organiques (LCPO),
ENSMAC, Université de - CNRS, Pessac, FRANCE

E-mail: simon.harrison@enscbp.fr

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Velika predavalnica Kemijskega inštituta /

Great Lecture Hall

National Institute of Chemistry

Hajdrihova 19, Ljubljana, Slovenia

Neither Block nor Random: Controlling Comonomer Distribution in Asymmetric Copolymers

Natural polymers make use of a restricted set of monomers to fill a vast range of functions through exquisite control over the placement of each monomer in the polymer chain. In synthetic polymers, by contrast, we rely on bespoke monomers to create functionality, with restricted control over their placement. We have investigated the effect of changing the spatial distribution of comonomers in copolymers made by controlled radical polymerization. For copolymers of acrylic acid (AA) and butyl acrylate (BA), passing from a block copolymer to an asymmetric stepwise gradient while maintaining a constant overall composition leads to dramatic changes in pH-response and self-assembly behavior. Copolymers of N-isopropyl acrylamide (NIPAM) and dimethyl acrylamide (DMA), on the other hand, show thermal responses whose breadth and position depends on the distribution of NIPAM units within the copolymer chains. These effects demonstrate how the properties of a polymer may be tuned by rearranging its component monomers to generate structures that fall between block and random copolymers.

Info: Dr. Ema Žagar ema.zagar@ki.si



Vljudno vabljeni / Kindly invited