

## Seminar Odjela za fiziku i Centra za mikro- i nanoznanosti i tehnologije

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Mjesto: *uživo* O-029 Odjel za fiziku, Sveučilišni kampus, Radmile Matejčić 2;

online: <https://meet.google.com/ecc-yhii-cbk>

Jezik: engleski

### **RAFT polymerization of N-(2-hydroxypropyl) methacrylamide as a macroCTA via microwave-assisted irradiation and their pH-responsive diblock copolymers respectively nano-objects**

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#### Abstract

A rapid and eco-friendly reversible addition-fragmentation chain transfer (RAFT) polymerization reaction of the N-(2-hydroxypropyl) methacrylamide (HPMA) monomer under microwave irradiation (MWI) is demonstrated. The polymerization kinetics were obtained using two different chain transfer agents (CTAs), namely, commercial 4-cyano-4-(phenylcarbonothioylthio)pentanoic acid and synthesized 4-cyano-4-(((ethylthio)-carbonothioyl)thio)pentanoic acid, in the presence of 4,4'-azobis(4-cyanovaleric acid) as the initiator in various solvents. In addition, the ability of MWI to facilitate copolymer formation was demonstrated by the preparation of relevant copolymers, such as poly(HPMA-b-bocAPMA), poly(HPMA-b-MABH) and poly(HPMA-b-PDPA). Furthermore, PHPMA-mCTA was used in a versatile platform for the synthesis of pH-responsive PHPMA-b-PDPA nano-objects obtained via MWI-RAFT polymerization-induced self-assembly (microwave-PISA).