UNIVERSITÀ DEGLI STUDI DI PADOVA

DiSC

Martedì **21 gennaio 2020**
alle ore **15** presso l'aula F

il prof. Roberto Simonutti

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terrà il seminario dal titolo:

Synthesis and characterization of polymeric nanostructures for drug delivery

In this presentation, I report on two research topics currently ongoing in my group: fabrication of nanoparticles by self-assembly of amphiphilic block copolymers (BCP) and decoration of nanoparticles with polymer brushes. BCP can spontaneously segregate (self-assembly) in distinct phases, due to opposed interactions with a selective solvent, generating polymeric nanoparticles in solution. Polymeric nanoparticles (NPs) are considered very promising carriers for intravenous drug delivery, thanks to their stability in physiological conditions and tunability of particle morphology and size. The final particle morphology can be predicted to some extent from structural parameters and by thermodynamic considerations, but the picture is further enriched by kinetic effects rising from the macromolecular nature of the amphiphiles. In fact it is possible to obtain morphologies ranging from simple micelle, to vesicles and wormlike micelles. Two possible methodologies for the synthesis of amphiphilic BCP are exploited in my group: controlled radical polymerization, as RAFT (Reversible Addition-Fragmentation chain-Transfer), and living ring opening polymerization (ROP). Both methods allows the synthesis of block copolymers with strong control on ratio between the two blocks, the molecular weight and molecular weight distribution.

Il Direttore del Dipartimento
Prof. Michele Maggini