

October 9, 2026, 13h45, Amphi Ricordeau

Dr. Abolfazl Heydari will present a talk : Connecting Structure to Function: Tuning Polysaccharide-Based Dynamic Hydrogels for Cartilage Regeneration



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Dr. Abolfazl Heydari is a senior researcher at the Polymer Institute of the Slovak Academy of Sciences and CEITEC–Brno University of Technology. His research focuses on biomaterials and tissue engineering, particularly the design of polysaccharide-based hydrogels, dynamic covalent networks, and injectable biomaterials for regenerative medicine. His expertise includes dynamic hydrogel bioinks for 3D bioprinting, cell encapsulation, and immunoprotective materials. He develops polysaccharides- and cyclodextrin-based systems for cartilage regeneration, localized drug delivery, and cell therapies. Dr. Heydari has led and contributed to several competitive research projects and collaborates extensively within multidisciplinary teams in biomaterials and regenerative medicine.

Abstract

Dynamic polysaccharide-based biomaterials offer versatile platforms for regenerative medicine owing to their tunable chemistry, adaptive mechanical properties, and biocompatibility. This talk highlights recent advances in the rational design of functional polysaccharide biomaterials, emphasizing structure–property–function relationships that govern their biomedical performance. Particular attention is given to how molecular architecture and crosslinking chemistry influence gelation kinetics, network dynamics, and biological interactions. Examples include dynamic hydrogel systems that mimic native extracellular matrices and polysaccharide-based platforms for localized therapeutic delivery. Together, these approaches demonstrate how molecular design can direct material behavior and cellular responses, advancing tissue engineering and regenerative medicine.