



Graduate Physics Seminar
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University of Nova Gorica

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Characterization of Monoliths

Abstract

One sort of chromatographic stationary phases are monolithic columns. Their main application is purification and separation of large biomolecules. A monolith consists of a single piece of porous material, which is synthesized via radical polymerization of methacrylate monomers and additionally modified into an ion-exchange chromatographic column. Due to the demands of regulatory agencies for biopharmaceutical products chromatographic columns in downstream processing should exhibit outstanding properties in terms of efficiency, productivity and high mechanical and chemical stability. They should therefore be extensively characterized before as well as throughout their usage cycle to assure constant quality of the purified product. This seminar will present a review of different characterization methods for determination of surface properties of monoliths. In addition, I will introduce novel techniques we will introduce in the future in order to get more information about chemical and physical properties of monolithic surface, such as pore size distribution, porosity, hydrophilicity of surface, behavior of surface in mobile phases with different ionic strength and chemical structure of ligands.