

SMALL-ANGLE NEUTRON SCATTERING INVESTIGATION OF FERROFLUIDS WITH MAGNETITE NANOPARTICLES COATED WITH ASPARTIC-ACID, STARCH AND HYALURONIC ACID

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The development of water-based ferrofluids is important for applications such as cell separation, magnetocytolysis, drug delivery, treatment of tumors by hyperthermia, contrast enhancement in MRI screening, reduction of implant infection and enhancement of tissue growth, cell manipulation, DNA sequencing, etc. [1, 2]. To do this, different types of magnetic particles obtained using different protocols must be coated with molecules to ensure the stability of the systems, compatibility with biological fluids, and, ultimately, therapeutic effect [3,4,5,6].

In the present work, we focus on the structural analysis of ferrofluids with magnetite nanoparticles coated with aspartic acid, starch and hyaluronic acid and small-angle neutron scattering method is used for this purpose [7]. In addition, two aspartic acid coated samples, prepared by chemical precipitation but applying different protocols [8, 9] are discussed.

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