

Doctoral School of Information and Biomedical Technologies
Polish Academy of Sciences (TIB PAN)

SUBJECT: SPION-based nanocomposites for drug delivery

DISCIPLINE: biomedical engineering

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DESCRIPTION: Superparamagnetic iron oxide nanoparticles (SPIONs) have attracted a great deal of attention in the biomedical field due to their functionality, including the ability to generate heat in response to a changing magnetic field. The nanocomposites containing SPIONs can not only provide a hyperthermic effect, but also serve as a platform for drug delivery. In this doctoral project, the organic-inorganic nanocomposites based on the SPIONs are used as drug carriers and local heat generators. The nanocomposite is obtained chemically, studying the influence of the composition and the ratio between the individual components on the physico-chemical properties such as morphology, structure and heating efficiency. Work will focus on obtaining material for extended drug release and in vitro studies evaluating drug release kinetics.