Annotation of Doctoral Thesis Topics for Degree Programme: Material Sciences and Engineering, course in „Biomaterials and Biocomposites“

Topic:	**Composite magnetic gel-hydrogel system for energy harvesting**
Supervisor:	**prof. Ing. Petr Sáha ,CSc.,dr.h.c.**
Consultant:	doc. Nabanita Saha, MSc. Ph.D.
E-mail:	nabanita@utb.cz

Annotation:

Efficient sensing with thermal management and heat recovery devices are of high technological significance for innovative energy conservation solutions. A magnetic composite[5] system would be fabricated for the energy conservation and harvesting device. Magnetic particle interaction would be utilized in the line of research. Experimentally, a magnetic composite material will be synthesized; their physicochemical and magnetic characterization for the formation of responsive sensitive composite materials will be performed. Apart from fabrication a functional prototype will be developed with the existing design that could be used to harvest energy.

Requirements:

Knowledge of general and macromolecular chemistry and physics at the university level. Good knowledge of the English language or a potential to the improvement. Basic manual and laboratory work skills. Ability to work independently.

Literature:

1. Shtarkman, E. M. Fluid responsive to a magnetic field 1991.