

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

---

**SUBJECT:**

**Shear-thinning/self-healing hydrogels for cartilage regeneration**

**SUPERVISOR:**

First and last name, email address, affiliation, postal address

Prof. dr hab. inż. Paweł Sajkiewicz, [psajk@ippt.pan.pl](mailto:psajk@ippt.pan.pl), IPPT PAN, Pawińskiego 5B, 02-106 Warszawa

**DESCRIPTION:**

Hydrogels have recently become the subject of great research interest in the field of tissue engineering as injectable tissue scaffolds. This is due to both the minimally invasive method of administration and the functional and structural similarity to the soft tissues of the human body. This proposal aims to develop injectable (shear-thinning) robust hydrogels based on polymer blends, most probably polysaccharides, with self-healing properties and enhanced physical-rheological and biological aspects. Polymer blends will be additionally loaded with selected bioactive additives to provide effective support for cells simultaneously mimicking biochemically and morphologically collagen fibers in cartilage ECM. Confirmation of the viability and activity of chondrocytes in contact with the developed hydrogel will be the final goal of the project. It is expected that the results of this research would bring us a step closer to the development of innovative methods in the treatment of damaged tissues, mostly with a perspective of cartilage regeneration.

**BIBLIOGRAPHY:**

...