**BRIEF DESCRIPTION OF THE UNIT / RESEARCH GROUP**

Within the current cooperation project, new cross-linked segmented polysiloxane-urethane copolymers for bone implant engineering will be developed at the Department of Integrated Electronics. In turn, the synthesized materials will be evaluated for their biocompatibility and mechanical properties at the Institute of Multiphase Processes.

**WHAT WE OFFER / PROJECT DESCRIPTION**

Cross-linked segmented copolymers are novel materials for medical implants with adjustable mechanical properties. Synthesis of these materials can be performed in two stages. The first results on testing biocompatibility of synthesized copolymers have revealed that under appropriate preparation conditions the resulted materials are free of toxic monomers and can be utilized as medical implants. Moreover, the synthesis of novel cross-linked segmented copolymer materials for medical implants will be established to create materials with adjustable mechanical properties close to those of human skeletal system. In addition, we are aiming at finding specific preparation and synthesis parameters, which could allow producing materials with a defined form (customized, patient-specific implants) that is highly desirable for medical implant engineering.

The cooperation within the project will allow exchanging knowledge and expertise between the partners. It is an excellent chance to combine significant theoretical background of SPbPU with excellent engineering and experimental expertise of IMP with highly equipped laboratories.

**KEYWORDS**

Bone implants, biomedical engineering, biomaterials, siloxane, ether-urethane, cross-linking, degradation

**COLLABORATION OUTCOME**

Scientific and student exchange, application of joint project proposals, joint experiments and publications