

Molecularly controlled, stimuli-sensitive hydrogels for dynamically adjustable biohybrid actuators

Initiative: Integration molekularer Komponenten in funktionale makroskopische Systeme (beendet, nur noch

Fortsetzungsanträge)

Bewilligung: 25.06.2017

Laufzeit: 3 Jahre

The project aims for the generation of a macroscopic biohybrid, hydrogel-based actuator with actuation by cells. These will be grown on a molecularly defined, responsive material and stimulated to contract. Local, externally controllable variations in the hydrogel will control the level of contraction. In this way, different actuator movements on the macroscale will be possible. The final goal is a prototype of such a novel actuator, and a thorough investigation of the complete system from the molecular scale to the macroscopic device, particularly with regards to actuation efficiency.

Projektbeteiligte

Prof. Dr. Christine Selhuber-Unkel

Universität Heidelberg

Institute for Molecular Systems Engineering (IMSE)

Heidelberg

Prof. Dr. Anne Staubitz

Universität Bremen

Fachbereich 2 - Biologie/Chemie

Institut für Organische und Analytische Chemie

AG Organische Funktionsmaterialien

Bremen

Open Access-Publikationen

Living materials herald a new era in soft robotics.

Microengineered hollow graphene tube systems generate conductive hydrogels with extremely low filler concentration.

Thermoresponsive Hydrogels with Improved Actuation Function by Interconnected Microchannels.

Gruppendynamik. Biohybride Roboter und intelligente Implantate.

