

Modern control systems require more and more advanced actuators. This in turn requires the use of electroactive polymers, which are often described as smart materials due to their properties. They enable creating and improving new types of devices applied in industry and medicine. Their greatest advantages are plasticity, lightness, noiseless operation and the ability to deform under electrical induction. Several types of these materials can be distinguished, however dielectric electroactive polymers (EAP) and ionic electroactive polymers carry the most significance in Automation and Robotics. The most recent developments concern dielectric polymers. The internationally conducted research analysed their properties and their production methods and selected papers explored control issues, however without taking advantage of the possibilities of modern systems theory. Therefore the proposed research topic is to determine control laws for an EAP actuator.