Guest Editorial Introduction to the focused Section on electroactive Polymer Mechatronics - DTU Orbit (11/12/2018)

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Mechatronic devices and systems based on so-called electroactive polymers (EAPs) represent a fast-growing and promising scientific field of research and development. EAPs consist of materials capable of changing dimensions and/or shape in response to suitable electrical stimuli. These polymers show unique properties, such as sizable electrically driven active strains or stresses, high mechanical flexibility, low density, structural simplicity, ease of processing and scalability, no acoustic noise, and, in most cases, low costs. EAPs are today studied for applications that so far have been unachievable with conventional actuation technologies, with usage spanning from the micro- to the macro-scale, in several fields, including robotics, automation, prosthetics, orthotics, artificial organs, optics, energy harvesting, and even aerospace. In an effort to disseminate current advances in the field, this Focused Section collects together a selection of papers dealing with a number of topics related to science and technology of EAPs. Following a brief introduction to the field, this Editorial provides an overview on papers dealing with EAPs published in previous issues of this journal, introduces the papers selected for this Focused Section, and highlights future trends in the field.

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