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Pneumatic Soft Actuators

Guest Editor:

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Deadline for manuscript submissions:
closed (31 October 2020)

Message from the Guest Editor

Soft robotics is a relatively new field which has seen a significant increase in interested over the last 5–10 years. It is a novel approach that investigates unconventional elastic materials, taking advantage of the intrinsic dynamics of deformable materials to enhance flexibility and controllability. This technology has the potential to revolutionise the robotics field, as it provides many benefits, including low cost, light weight, intrinsic safety, and the ability to deform to objects and obstacles. Traditional electric, pneumatic, and hydraulic actuators are not well suited to this new field, and as a result, many new actuators have been proposed. Due to their inherent compliance, pneumatic actuators have proven popular in soft robotic systems; therefore, this Special Issue targets high-quality publications spanning (but not limited to) the following topics:

- The design of novel pneumatic soft actuators;
- The control of soft pneumatic systems;
- Pneumatic artificial muscles;
- Compliant pneumatic actuation;
- Modelling of soft pneumatic actuators;
- The application of pneumatic soft actuation.

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Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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