

## Call for Papers Focused Section on *Compliant Mechanisms for Mechatronics*

*Compliant Mechanisms (CMs)*, along with *Soft Robotic* devices formed therewith, may be defined as engineering systems achieving force and motion transmission via the deflection of flexible members. *CMs* have increasingly gained a strong foothold in the scientific arena owing to their hinge-less nature, shock resistance, potential single-piece manufacturability, safety in human-machine interaction, minimal maintenance requirements, and adaptability to work in unstructured environments. In parallel, current advances in the production of inherently compliant sensory-motor apparatus, as well as progress in the development of robust control methods, are paving the way to practical *CM* adoption in a large variety of engineering fields, including healthcare, manufacturing, inspection/maintenance, and agrifood. However, by embracing large deflections as a requirement rather than a design flaw, the conception and the subsequent physical prototyping of optimal *CMs* requires: *i*) material models capable of dealing with finite deformations, time-dependent phenomena, and uncertain constitutive parameters; *ii*) design tools allowing to simulate the behaviour of highly deformable structures; *iii*) reliable, possibly affordable, manufacturing methods; *iv*) more powerful adaptive learning and control techniques. Within this scenario, this focused section aims at providing an opportunity for material scientists, robotic/control engineers, and practitioners from academia or industry to present the latest theoretical and technological achievements in *Compliant Mechanisms for Mechatronics*. Particular focus shall be placed on transdisciplinary methodological frameworks, hardware development for real-world applications and out-of-lab experiments. Papers presenting newly emerging fields (such as robotic programmable materials) are also especially welcome.

Manuscripts should contain both theoretical and experimental results and they will be subject to the normal TMECH review procedures. The topics of interest within the scope of this Special Section include, but not limited to, the following:

- Integrated design of compliant mechanisms for robotics & mechatronics;
- Control methods for continuum & reconfigurable soft/compliant robots;
- Computer-Aided tools for optimizing adaptive systems;
- Manufacturing methods for soft intelligent machines (such as Additive Manufacturing and 4D Printing);
- Optimization of programmable stiffness mechanisms & actuators;
- Architected, functional and meta-materials for compliant/soft robotics;
- Smart-material-based actuation & sensing systems;
- Stretchable/flexible electronics & power sources;
- Applications of compliant mechanisms in healthcare, manufacturing, inspection/maintenance, and agrifood.

### Manuscript Preparation:

Papers must contain original contributions and be prepared in accordance with TMECH standards. Instructions for authors are available online at: <http://www.ieee-asme-mechatronics.org>

### Manuscript Submission:

Manuscripts should be submitted through the online submission service available at: <http://mc.manuscriptcentral.com/tmech-ieee>. The cover letter should report the following statement: “*This paper is submitted for possible publication in the Focused Section on Compliant Mechanisms for Mechatronics*”. All manuscripts will be subjected to a peer review process.

### Important Dates:

Paper Submission	1 March, 2023
Completion of First Review	June 1, 2023
Submission of Revised Papers	June 15, 2023
Completion of Final Review	September 15, 2023
Submission of Final Manuscripts and Copyright Forms	October 31, 2023
Publication	December 2023

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