4th IFToMM Symposium on
Mechanism Design for Robotics (MEDER 2018)
11-13 September 2018
University of Udine, Udine, Italy

"Model-based design and optimization"

The growing complexity of mechanical and mechatronic systems as well as the shortening of development times have led to the widespread research and development of a model-based design approach. Such an approach is the formalized application of modeling to support system design, analysis, verification and validation activities starting from the conceptual development phase to later life cycle phases.

Throughout the design process, there is a need for models as simplified representations of the real world. These should be accurate as necessary but as simple as possible to ensure solvability and adequate numerical conditioning. However, the availability of a correct model formulation is not always sufficient to correctly predict behavior of dynamic systems. Therefore, methods for tuning and/or improving the models become necessary. Parameter identification and model updating techniques allow for achieving correct results when some parameters are not correctly tuned. Further, structural modification and design optimization are utilized to find the optimal design of mechanical or mechatronic systems, e.g. to meet the desired dynamic behavior or to increase performance.

Accordingly, this track will include the latest research in the field by covering topics including, but not limited to:

- Design of mechanical and mechatronic systems
- Design optimization
- Sensitivity analysis
- Structural modification
- Model updating
- Parameter identification
- Model reduction

The track is organized by:

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