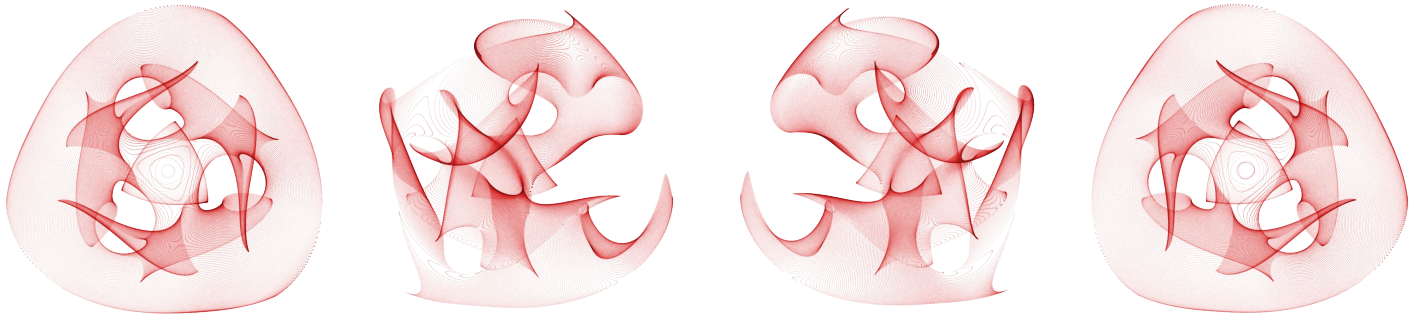


# SIMERO 2019

Barcelona, 22-26 July  
<http://simero.org>

## 3rd Summer School on Singularities of Mechanisms and Robotic Manipulators



**Robotics is flourishing.** Whether on Earth or in Space, from research labs to medicine, or industry, innovative robot mechanisms constantly see the light of day. The capacity to perform complex motions in a precise and reliable way is essential for such devices, but the analysis and planning of such motions is by no means trivial. It requires a deep understanding of so-called *singularities*, the special configurations of a mechanism in which the kinematic and dynamic behavior undergoes sudden and dramatic change.

The purpose of this school is to introduce key methods, milestone results, and main problems involving singularities of mechanisms and robotic manipulators around the following topics:

- Definition of singularity. Singularity types.
- Mathematical characterization of singularities.
- Local and global topology of the singularity set and configuration space.
- Symbolic and numerical tools for singularity set computation.
- Methods to compute singularity-avoiding motions.
- Applications to illustrative robots and mechanisms.

The school will provide a good balance between theory and practice. The attendees will be introduced to mathematical formalisms needed to cope with singularities, but also to software tools useful to compute and visualize them.

### Lecturers:

- **Dimiter Zlatanov**, Università di Genova.
- **Andreas Müller**, Johannes Kepler Universität, Linz.
- **Manfred Husty**, University of Innsbruck, Austria.
- **Philippe Wenger**, CNRS and École Centrale de Nantes.
- **Oriol Bohigas**, Beta Robots, Barcelona.

**The school will take place in the lively and beautiful city of Barcelona**

