

*Invited track on:*

**“Mechatronics tools and control related to robotic manipulation“**

**Organizers:**

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**Track abstract:**

Robotic manipulation deals with the use of mechatronic devices, generally integrated grasping tools together with robot arms, to perform manipulation or grasping of objects. Such robot tasks exist both in macro and in miniaturized scales (microrobotics) and their applications are numerous: automotive industry, medical (surgery and assistance), watch industry, military...

While many challenges have been yet observed in robotic manipulation, such as limited number of sensors and uncertainties, we witness the last decade novel scientific stimuli: robotic manipulation in presence of or with human, tasks in harsh - extreme or tiny environment, manipulation tasks with very small objects where surface forces are more important than the weight, more and more complex objects shape, deformability of the objects, more and more dexterity to be reached, multi-fingered manipulation, grasping stability, manipulation based on mobile robotics platform. Hence new advanced modeling, control techniques and related tools have also been raised for the mechatronic devices that equip these robots and for these latter as well.

The aim of this open invited track is to create the opportunity of bringing together the researchers from the communities of mechatronics, robotics and control to propose innovative solutions and methodologies to succeed the tasks of manipulation.

**Technical Committee:** *This invited track is within the IFAC T.C.4.2-Mechatronic Systems activities. The invited track can also touch the IFAC T.C.4.3-Robotics.*

**Keywords:** advanced methodologies of control, stability analysis, grasp quality, trajectory tracking, force control, modeling, estimation, identification, actuators, sensors, robot hands.

The keywords listed above should be referred but not limited to: autonomous, collaborative or tele-manipulation, assembly, grasping, Human-Robot interaction, microrobotics, (macro)robotics. Simulation and/or experiments are strongly encouraged in the submitted papers.

***Invited track submission code: ne9qv*** ;

***Deadline: October 31<sup>st</sup>, 2019***