

## **Proposal for Open Invited Track at IFAC World Congress 2017**

### **Title: Sliding Mode Control Design: Fundamental Concepts and New Challenges**

#### **Proposers:**

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**Description:** The concept of Sliding Mode Control (SMC) was initiated in 60's, embracing the scope of research in the area, stimulated proliferation of SMC methodology into research programs of control theorists and engineers in many countries. As a result the scientific arsenal, accumulated in theory of SMC during more than 50 years, offers the wide range of both problem statements and methods for their solutions in the well-established SMC research topics such as

- mathematical description of SMs
- design principles
- Lyapunov stability tools
- high order SMC
- adaptive SMC
- SM observers
- chattering analysis
- SMC in discrete-time systems
- SMC in infinite-dimensional systems
- SMC in the presence of stochastic noises

The current track aims to stimulate a discussion on state-of-art of SMC and to share accumulated experience to prevent misleading statements and exaggerated optimism. Potential authors are encouraged to contribute to the existing topics as well as to reveal new ones, focusing on challenging problems, new analysis tools, design techniques, and significant applications.

**Keywords:** Sliding mode control; Lyapunov methods; disturbance attenuation and sliding mode control of distributed parameter (and time delay) systems