

## CALL FOR PAPERS

### Special Issue on

# New Trends in Sliding Mode Control and Observation for Markovian Jump Systems

Markovian jump systems (MJSs) are widely utilized to model many dynamical systems with abrupt structural variations governed by a Markov chain. MJSs have been successfully used in many practical systems such as manufacturing processes, economic systems, networked control systems. Due to the theoretical and practical challenges in analysis and synthesis of MJSs, in the past few decades, development of robust control or observer methodologies for this kind of systems has been a main core of theoretical and practical research in control systems community. Specifically, the complexities of MJSs include, but are not limited to, abrupt changes in their structures or parameters and incomplete transition probabilities (TPs). The complexity of the system cause considerable challenges in the tasks of analyzing stability and designing corresponding controller /observer. Therefore, there are two important subjects in system and control theory, which have been extensively studied in the past years. Specially, the sliding mode control and observation (SMC/O) techniques serve as powerful tools in this respect. Furthermore, some combined SMC/O methodologies have been developed such as adaptive SMC/O, fuzzy-model-based SMC/O and backstepping-based SMC/O for a wide range of MJSs. Therefore, it is still interesting and challenging to develop novel theories of SMC/O for MJSs with possibility of implantation to modern practical application potentials.

The primary objective of this Special Issue is to provide a forum for researchers and practitioners to exchange their latest theoretical and technological achievements and to identify critical issues and challenges for future investigation on the sliding mode control and observation techniques for MJSs. The submitted papers are expected to bring up original ideas and potential contributions for theory and practice, including electrical machines, power electronics and drives, hydraulic/pneumatic actuators, robotics, automotive industry, and aerial/aerospace vehicles. However, topics include, but are not limited to, the following research areas:

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|--|---------------------------------------|
| ☐ SMC/O for MJSs with incomplete TPs         | ★ Event-trigger based SMC/O for MJSs  |
| ☐ SMC/O for MJSs with asynchronous switching | ☐ Network based SMC/O for MJSs        |
| ☐ SMC/O for singular MJSs                    | ☐ SMC/O for fuzzy-model based MJSs    |
| ☐ SMC/O for singularly perturbed MJSs        | ☐ Fault-tolerant based SMC/O for MJSs |
| ☐ SMC/O for Lur'e MJSs                       | ☐ Finite-time SMC/O design for MJSs   |
| ☐ SMC/O for repeated nonlinear MJSs          | ☐ Applications to industrial systems  |

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#### Important Dates

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|------------------------------------|-----------------------|
| Submission of manuscripts:         | October 31, 2018      |
| First round of the review process: | December 31, 2018     |
| Final manuscript due:              | March 31, 2019        |
| Publication date:                  | July 2019 (Tentative) |

#### Manuscript Preparation and Submission:

Please follow the guidelines appearing in "Information for Authors" from the website, <http://www.ijcas.com/>. Submit your manuscript in electronic form through the Manuscript Central web site, <http://jcas.edmgr.com/>. Upon the popup menu in page #1 asking "manuscript type", please select "Special Issue on New Trends in Sliding Mode Control and Observation for Markovian Jump Systems."