

The 2015 International Conference on Advanced Mechatronic Systems (ICAMechS 2015)  
Beijing, China, August 22 - 24, 2015



Special session on : “Advanced Control Systems Design - Theory and Applications”

Session Organizers:

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2-24-16 Nakacho, Koganei-shi, Tokyo 184-8588, Japan

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Session Theme and Objective:

In the recent decades, a great deal of attention has been attracted to advanced control system design for uncertain and complex practical systems due to many kinds of requirement for capability of the control on the improvement of the control performance, the costs performance and safety of the control system. With this in mind, several novel and advanced ideas in control methodology including adaptive, self-tuning, optimal and data-driven controls have been proposed and tried to apply to the practical systems. The aim of this session is to present the new research ideas and results on advanced controls which deal with control problems for uncertain and/or complex controlled systems. The results on theory and applications of advanced control methods will be shown in order to demonstrate the applicability and efficiency of the proposed advanced control strategies. Moreover, future research interests in advanced controls including adaptive type control strategy will be promoted through discussions among the attendants of this session.

The proposed special session consists of the following papers.

1. **Title:** Flow Disturbance Suppression for a Pneumatic Vibration Isolator Using a Central Pattern Generator  
**Author:** Yukinori Nakamura\*†, Daishi Funaki\*, Mami Kimura\* and Shinji Wakui\*  
**Affiliation:** \*Tokyo University of Agriculture and Technology  
**Email:** yukino-n@cc.tuat.ac.jp†  
†Corresponding author
2. **Title:** Multivariable Controller Design Evaluating Closed-Loop Interaction by Iterative LMI Optimization Using Frequency Response Data  
**Author:** Shogo Shinoda\*†, Kazuhiro Yubai\*, Daisuke Yashiro\* and Junji Hirai\*  
**Affiliation:** \*Mie University  
**Email:** shinoda.s@ems.elec.mie-u.ac.jp, yubai@elec.mie-u.ac.jp, yashiro@elec.mie-u.ac.jp, hirai@elec.mie-u.ac.jp  
†Corresponding author
3. **Title:** Design of a failure tolerance controller using MT system  
**Author:** Shin Wakitani\*†and Mingcong Deng\*  
**Affiliation:** \*Tokyo University of Agriculture and Technology  
**Email:** wakitani@cc.tuat.ac.jp  
†Corresponding author
4. **Title:** Reduction of Quantization Error in Multirate Output Feedback Control with a Static Quantizer  
**Author:** Takao Sato\*†, Nozomu Araki\* and Yasuo Konishi\*  
**Affiliation:** \*University of Hyogo  
**Email:** tsato@eng.u-hyogo.ac.jp  
†Corresponding author
5. **Title:** Position Control of Quad-rotor Helicopters Suspended a Flexible Cable with On-line Estimation of Disturbances  
**Author:** Hayami HAYAKAWA\*, Shogo OBATA\* and Manabu YAMADA\*†  
**Affiliation:** \*Nagoya Institute of Technology  
**Email:** yamada.manabu@nitech.ac.jp  
†Corresponding author
6. **Title:** Data-driven Controller Tuning for Helicopter Attitude Control  
**Author:** Shiro Masuda\*†and Xianda Kong\*  
**Affiliation:** \*Tokyo Metropolitan University  
**Email:** smasuda@sd.tmu.ac.jp  
†Corresponding author

Subject Coverage (not limited to)

- Advanced Modeling and Control
- Robust control and robustness
- Data-driven control
- Digital control systems analysis and design
- Adaptive Control
- Mechatronics
- Robot Control
- Model predictive control
- Performance assessment
- PID Control
- Multirate control
- Nonlinear system