Invited Session “Advanced Intelligent Control of Hypersonic Flight Control”

Due to the high speed flying, a more reliable and cost efficient way to access space is presented by hypersonic flight vehicles (HFVs). Controlling HFV is challenging due to the complex dynamics while there is not enough experiment data. To control such dynamics, intelligent control provides the possible solution without knowing exact value of the aerodynamic parameters. Note that the dynamic environment is usually changing and the autonomous systems should adapt themselves accordingly. In this context, on one hand, more efforts should be focused on the methodology of the learning system. For example, the fast adaptation and self-organizing capability are essentially required. On the other hand, the great advantage of advanced analysis tools should be taken to enhance the control performance. Thus, deep intelligence should be integrated tightly with nonlinear design for complex control tasks

This session will cover a broad spectrum of advanced nonlinear control and specially focus on dealing with new problems encountering in control of HFV. This special issue aims at providing a forum for researchers and practitioners in the field of aerospace engineering and control engineering to disseminate their new ideas and research results. We are soliciting original high-quality research papers on topics of interest, but are not limited to the following main topics:

* Reinforcement Learning Control of Hypersonic Flight Vehicle
* Neural/Fuzzy Hypersonic Flight Control
* Data-Driven Hypersonic Flight Control
* Fuzzy Fault Tolerant Hypersonic Flight Control
* Composite Learning Based Intelligent Control with Application to HFV
* Self-organizing Intelligent Control with Application to HFV
* Disturbance Observer Based Intelligent Control with Application to HFV

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