Linear Parameter Varying Systems: modelling, analysis, observation, control, diagnosis and applications

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Abstract

This open invited track aims at presenting recent results in the field of LPV systems and applications.

Linear Parameter Varying systems have state space representations that depend on timevarying parameters. This class of systems allows representing several types of systems such as non-linear systems, switching systems, multi-models...

The topics will cover several areas concerning LPV systems: modelling, analysis, observation, control and diagnosis.

Some of the important keywords include:

- Modelling and Identification of LPV systems How to obtain LPV systems from: nonlinear systems, switching systems, time-delay systems, sampled-data systems, systems with saturation, uncertain systems, polynomial systems ... Model reduction for LPV systems
- Analysis of LPV systems: stability and stabilization, robustness issues, geometric approaches, structural analysis
- Observation, Control of LPV systems: Observer design, Hinf control, optimal control, Model Predictive Control, virtual reference feedback tuning...
- Fault Diagnosis and Fault-tolerant control of LPV systems: fault detection, fault estimation, fault tolerant control ...
- Applications Automotive, aerospace, robotics, chemical processes, biological systems, energy and nuclear, network controlled-systems...