Open Invited Track "Thermodynamics and Control"

The relation between systems theory, as understood by researchers and practitioners in automatic control, and thermodynamics is an active scientific area of investigations. Classical extensions of dissipative systems theory to dynamical systems with inputs and outputs under thermodynamic constraints lead, in recent years, to numerous results ranging from geometric framework for feedback control design to stability analysis, both for deterministic and stochastic systems. The need for a physically-consistent control theory for thermodynamic systems also arises from applications, in particular energy production and transformation process systems, reaction networks analysis, and distributed parameter systems.

The objective of the proposed Open Invited Track is to gather contributions from systems and control practitioners and researchers interested in thermodynamic systems. Contributions on modelling, analytic, geometric, and control design methodologies for thermodynamic systems and processes, are all welcomed. Contributions could also include complex and networked systems and phenomena occupying a varied range of time and spatial scales. Application domains may include, but are not limited to: Energy efficient chemical processes or processes related to the production of smart materials that usually take place in the micro or nano-scale. Biological phenomena from a cell (biochemical) level through a tissue/organism and up to the ecological interactions between organisms. The behavior and control of particulate systems. Emergence of self-organizing behavior in networks of interacting agents where collective dynamics emerge from the consensus among a large number of ensemble members. Applications would cover fields such as ecology, robotics or socio-economy and more generally Cyber-Physical Systems. Control of large scale networked systems, such as chemical plants, integrating financial systems and sociological systems and more generally, modeling and control of irreversible thermodynamic systems.

Contributors, who wish to submit their paper to the open invited track on "Thermodynamics and Control", are asked to enter the submission code (**code i9499**) when submitting their papers through the submission portal http://ifac.papercept.net/conferences/scripts/start.pl.

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