Bioprocess modeling and control (Session code: v5744)

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Biotechnologies represent a very complex field with applications of major importance in different industries, such as: enzymes producing, food producing, environmental conservation and protection, medicine. In the last years biotechnologies have gained an interdisciplinary character, combining different fields including automation. The role of bioprocesses modeling and control is to make these processes more efficient in terms of production achieved with reduced material and energy consumptions.

Biotechnological processes are complex, strong non-linear and affected by uncertainties (hidden dynamics and parametric uncertainties) making their modeling and control very difficult. Bioprocess modeling and control issue is even more difficult as the possibility of measuring the major parameters is still very low. This is due to the lack of reliable sensors, at a reasonable cost, allowing an on-line safe acquisition of bioprocesses variables of interest. A solution is to develop performant state and parameters observers. In these conditions, bioprocesses modeling and control have become a real challenge for specialists in control.

In this context we invite specialists (researchers, scientists and engineers) from academia and industry to join to the proposed session for an exchange of ideas, results and opportunities to collaborate in various fields, including modeling and identification, state estimation and methods of monitoring and control applied on the different types of bioprocesses (biosynthesis processes, wastewater treatment processes, photosynthetic growth of microalgae etc.).