

Invited session 2: Modeling and control of biotechnological processes

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Authors: Sergiu Caraman, Mariana Titica, Dan Selisteanu, Marian Barbu

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Description:

In recent years, biotechnologies evolved greatly, taking a considerable advance. Due to their diversity, they have found multiple applications in various fields such as agriculture, food industry, pharmaceutical, industrial production, environment, medicine etc. If in the beginning biotechnologies were developed on the basis of strictly technological research, currently, to increase their efficiency, they are developed in an interdisciplinary way, using results and methods in fields such as automation - modeling and process control, informatics, mathematics etc. From a systemic point of view, biotechnological processes are complex, strongly nonlinear and affected by uncertainties (parametric or model - hidden dynamics), which makes them a real challenge for the specialists in modeling, identification and control. Consequently, in parallel with the development of new methods and plants for the development of biotechnologies, a series of automation methods have been developed and applied, starting from the conventional ones and continuing with advanced control methods, including the use of artificial intelligence techniques.

The invited session "Modeling and control of biotechnological processes" is a good opportunity for the researchers interested in this field to exchange new ideas and solutions on techniques for modeling and control of bioprocesses, identification and estimation of state variables and parameters for this type of processes. In this regard, papers on bioprocess monitoring and modeling, applications on different advanced control methods (robust, optimal, adaptive etc.) are encouraged, including artificial intelligence techniques (fuzzy, neural, neuro-fuzzy, etc.).