

Open Invited Track

Process control with tomographic sensors

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Abstract

The session invites to present recent developments in the field of industrial process control via industrial process tomography sensors. The scope covers fundamental approaches for sensors, data processing and control strategies using massive image data as well as examples of existing or proposed industrial application. A focus on the sensor side is on smart tomographic sensors, that is, sensors which are small, robust and integrated into the process. Such sensors typically use electromagnetic, optical, ultrasound or microwave sensing technology. However, also systems based on sensors using ionizing radiation or magnetic resonance may be addressed. On the control side focus is on fast and robust massive data and image processing, including image reconstruction, as well as application of advanced control strategies which account for massive image data, such as model-predictive control, fuzzy control and neural networks. Potential industrial applications are seen in the process industry, but can also be related to other fields, like environmental engineering, manufacturing engineering or energy engineering.

Keywords

- Tomography-based industrial process control
- Process tomography sensors
- Real-time data and image processing for control
- Model Predictive Control
- Fuzzy Control