Sensors, Sampling, and Simulation for Process Control

Description: This symposium aims to explore the current state of the art in control of industrial processes in the field of extraction and processing of metals and materials. New sensor technologies, more advanced real-time models, and faster computers are enabling better control systems for these processes. Specific topics include but are not limited to: (1) novel sensors for hostile-environment materials processes, such as online inclusion detection, temperature, and velocity in molten materials, surface condition of hot moving products, etc.; (2) innovative online sampling and analysis techniques, (3) models for real-time process control and quality monitoring systems; (4) process automation, scheduling, and plant-wide logistics optimization, (5) control of composition, temperature, microstructure, and morphology in sintering, smelting, refining, solidification, reheating, deformation, and transport of ores, slags, mattes, metals, materials, and aqueous solutions; (6) prediction, monitoring, control, and optimization of process parameters in these systems; (7) control in manufacturing processes, including casting, annealing, forging, rolling, extrusion, powder metallurgy, electronic materials, welding, etc.; (8) control of impurities and environmentally undesirable components in product and waste streams.

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