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Special Issue Reprint

Industrial IoT-Enabled Modeling and Optimization for the Process Industry

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This Reprint collects high-quality research papers focused on Industrial IoT-enabled modeling and optimization technologies tailored for modern process industries. As a fundamental backbone of national economic development, process industries covering chemical, iron and steel, non-ferrous metallurgy are now facing mounting pressures from resource constraints and fluctuating market demands. Advancing smart manufacturing has therefore become essential to boost operational efficiency and accelerate industrial decarbonization. This Reprint systematically presents cutting-edge theories, innovative methodologies and practical engineering applications in this field. The included studies span a wide range of key research directions: Industrial IoT-driven process modeling, intelligent fault diagnosis, and multi-dimensional industrial process optimization, production and logistics scheduling, as well as the deployment of machine learning in diverse process industry scenarios. All papers featured in this Reprint combine theoretical exploration with field verification, delivering feasible technical solutions for intelligent upgrading, energy conservation and safe production in process industries. They offer valuable references for researchers, engineers and industry practitioners engaged in Industrial IoT, smart manufacturing, industrial modeling and process optimization, and also shed light on future technological development and industrial transformation in related domains.

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