Digitization of the Energy System

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Europe's energy supply is characterized by the comprehensive transformation of structure, processes and business models. The unbundling and the merging of networks and markets have shaped this development as well as the enormous growth of renewable energies and the associated decentralization. This transformation process can only succeed if the massive use of modern information and communication technology (ICT) and its innovations are used in such a way that the pillars of the energy triangle are pursued and implemented in a balanced manner. The fast-moving digitization and automation process will be the companion to transforming our energy system, which will be highly flexible and decentralized. The massive interaction between generation, transport, storage and consumption requires digitization by intelligent components as well as networking of the overall system in the superordinate level. The process involves developing disruptive technologies as well as software architectures, applications and new functionalities of intelligent components.

This track gives an overview of the challenges and opportunities as well as the current achievements of using modern digital solutions in the field of energy supply. Particular attention is paid to the integration of renewable energies and the transformation of the entire energy supply system. Current developments for improved wind and solar power forecasts, optimized grid operation, efficient use of balancing power, new market mechanisms and solutions for low-emission electricity use are presented. A keynote introduces the new meaning of mass data and data science.

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