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Modeling, Analysis, Simulation, Control and Protection of Converter Dominated Power Systems

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Message from the Guest Editor

Dear Colleagues,

Energy transition will lead to a power system dominated by generation (wind and solar photovoltaic) that is connected to the grid through power electronic converters. Moreover, HVDC transmission will be a relevant component in such power systems. A converter dominated power system raises many challenges in modeling, analysis, simulation, control and protection. What models can be used to characterize the relevant dynamics? What simulation and analysis techniques are appropriate for the proposed models? How should controllers of inner, outer and complementary loops be designed? How should the current protection system be operated and what modifications will be needed?

Potential topics include, but are not limited to:

- Models of power electronic converters;
- Models of wind and solar photovoltaic plants;
- Overall power system models; Eigenvalue analysis;
- Time domain simulation of highly stiff systems;
- Inner control, outer control loop and supplementary controller design;
- Controller interaction; Protection systems;
- Practical studies of power systems with mostly converter-based generation.



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Special Issue



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Message from the Editor-in-Chief

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