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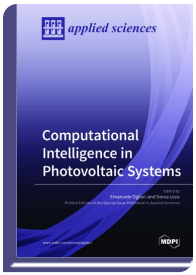
Special Issue Reprint

Computational Intelligence in Photovoltaic Systems



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Photovoltaics, among the different renewable energy sources (RES), has become more popular. In recent years, however, many research topics have arisen as a result of the problems that are constantly faced in smart-grid and microgrid operations, such as forecasting of the output of power plant production, storage sizing, modeling, and control optimization of photovoltaic systems.

Computational intelligence algorithms (evolutionary optimization, neural networks, fuzzy logic, etc.) have become more and more popular as alternative approaches to conventional techniques for solving problems such as modeling, identification, optimization, availability prediction, forecasting, sizing, and control of stand-alone, grid-connected, and hybrid photovoltaic systems. This Special Issue will investigate the most recent developments and research on solar power systems.

This Special Issue "Computational Intelligence in Photovoltaic Systems" is highly recommended for readers with an interest in the various aspects of solar power systems, and includes 10 original research papers covering relevant progress in the following (non-exhaustive) fields:

- Forecasting techniques (deterministic, stochastic, etc.);
- DC/AC converter control and maximum power point tracking techniques;
- nd optimization of photovoltaic system components;
- oltaics modeling and parameter estimation;
- nance and reliability modeling;
- Decision processes for grid operators.

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