Special Issue

Advanced DC–DC Converters for Renewable Energy Applications

Message from the Guest Editor

DC–DC converters can be designed based on three different fundamental approaches, namely, (a) linear converters, (b) inductor-based switch-modes, and (c) switched capacitor converters (charge pumps). A more recent approach is to combine supercapacitors with linear converters in a (4th) new technique involving the production of supercapacitor-assisted low-dropout (SCALDO) regulators. In all practical converters, (i) conversion efficiency, (ii) load regulation, (iii) line regulation, (iv) loop stability, (v) power density, and (vi) EMC compatibility are important design parameters. Another important topic to be discussed is the DC–DC converters for data centres powered by renewable sources, considering converter efficiency, packaging, and cooling requirements. Higher losses in kilowatt- to megawatt-order converters significantly increase cooling requirements . This Special Issue will address the relevant aspects of DC–DC converters with the objective of developing renewable energy systems.

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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