

Special Section on:

Emerging Topics of DC-DC Converters for Solar PV

Recent advancements in renewable energy technologies including dramatic improvement in cost-effectiveness and reliability have driven wide deployment of renewable energy sources in the modern electric grid across the globe. Among the renewable energy sources, solar photovoltaic (PV) is the most widely used. For the solar PV system, the dc input of a PV cell, module, string, or array, ranging from sub-1V to 1,500V, in general, needs to be converted to an intermediate dc voltage by a DC-DC converter(s), for conditioning reliable dc power for grid interface. Thus, the DC/DC conversion greatly affects the entire PV system performance, such as efficiency and reliability among other crucial aspects. To address the critical aspects, many research and development efforts have conducted studies on the DC-DC converters for PV system such as converters with high conversion ratios and high power density and multi-port converters to incorporate multiple sources including storage. As the solar PV application is still expanding and diversifying in grids and many others, continuous research and development in DC-DC converters for solar PV systems is paramount. To facilitate dissemination of the recent developments, this special section will serve to collect the studies in the emerging topics in dc-dc converter technologies including converter topologies, modeling, control, design, and analysis.

We encourage researchers working in this area to submit papers to this Special Section. Topics of interest include, but are not limited to:

- ✓ **Isolated and non-isolated DC-DC converter topologies**
- ✓ **Modeling and control of DC-DC converters for PV**
- ✓ **Reliability-oriented analysis and improvement**
- ✓ **Converter dynamics and control design for stability**
- ✓ **Design optimization of PV converters and system**
- ✓ **Fault diagnosis, fault-tolerant control, and protection of DC/DC converters and PV systems**
- ✓ **Converter design and control for grid supports**
- ✓ **Application of high-performance wide band-gap devices (GaN and SiC) for solar PV**
- ✓ **Magnetic components design methods for PV**
- ✓ **Multi-input and/or multi-output DC-DC converters for solar PV combining with energy storage system**
- ✓ **Modular or scalable approach for high voltage or high power applications**

Manuscript Preparation and Submission

Check carefully the style of the journal described in the guidelines “Information for Authors” in the IEEE- IES website: <http://www.ieee-ies.org/pubs/jestie>. Please submit your manuscript in electronic form through: <https://mc.manuscriptcentral.com/jestie-ieee/>.

On the submitting page, in pop-up menu of manuscript type, select: “**SS on Emerging Topics of DC/DC Converters for Solar PV**”, then upload all your manuscript files following the instructions.

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