Special Section on:

# Fractional PWM Converter Variable Speed Generator Systems

By the merit of fractional power converter and flexible manner to transfer energies from dual ports, the doubly-fed generator has been widely adopted in variable speed generator systems including renewable energies, ship shaft power generation, and vehicular generators, etc. The fragile slip rings and brushes required from the wound rotor limits the cost-effective and reliable operation, therefore a brushless concept with dual windings and squirrel cage structure, has attracted increasing attention in recent decades. With regards to the grid-tied application, traditional ac grid connection with partial-scale power converter are the state-of-art solution, while the dc connection emerges due to its compatibility to the HVDC power transmission. Meanwhile, the linear and advanced control strategies are explored in order to become more adaptive, when the variable speed generators are subject to the standalone intensive loading conditions and the complicated non-ideal grid situations.As the thermal stress related wear-out of the power electronics and machine is the dominant failure mode, it is important to understand the thermal stress, and limits of component/system in the practical use. Condition monitoring, diagnosis and prognosis are effective means to reduce the maintenance cost and improve the reliability and lifespan of the generator systems. Due to the continuous demands for high reliable and cost-effective power conversion, quantified reliability performances of the electrical machine and its driver are becoming emerging needs.

This special section aims to provide a platform for academic and industrial communities to report recent findings and emerging research direction in this field. Editors invite original manuscripts presenting recent advances in these fields with special reference to the following topics:

- ✓ **Novel topologies of variable speed generators driven by fractional PWM converter**
- ✓ **Grid-tied and standalone application of variable speed generator systems with fractional power converter**
- ✓ **Variable speed fractional PWM converter generator systems in large-power renewable energies with ac and dc power transmission**
- ✓ **Classical linear, vector control, direct power control during abnormal grid/loading conditions**
- ✓ **Advanced and promising control strategies (e.g. sliding model control and predictive control, etc.)**
- ✓ **Rotor speed or position observer and corresponding sensor-less control**
- ✓ **Life time prediction and thermal stress in incumbent power electronics**
- ✓ **Condition monitoring, fault diagnosis and tolerance operation**
- ✓ **Optimization design and control methods for low system costs and losses**
- ✓ **Other emerging technologies**

## Manuscript Preparation andSubmission

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 Fractional PWM Converter Variable Speed Generator Systems**", then upload all your manuscript files following the instructions.

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## Timetable

| Deadline for manuscript submissions: | Information about manuscript acceptance: | Publication Date: |
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