The 46th Annual Conference of the IEEE Industrial Electronics Society

October 18-22, 2020, Marina Bay Sands Expo and Convention Centre Singapore

Special Session on

"Challenges in Harmonic Mitigation and Reliable Operation of Power Electronic Converters in Industrial Applications"

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Challenges of harmonic mitigation and reliable operation through power electronic converters have always been at the forefront in industrial applications. The major causes of harmonics in any industrial system typically includes power conditioning devices, adjustable frequency drives, switched-mode power supplies, arcing devices, and other significant non-linear loads. These harmonics have severe negative impacts such as excessive voltage distortions, power losses, malfunction of protective equipment, operational instability, and neutral burning. Therefore, employing the power electronic converters against harmonic issues and different grid conditions are crucial in order to ensure improved power quality, high efficiency, and operational stability of industrial systems. Moreover, the recent trends also emphasizing on developing advanced control techniques for the efficient operation of power electronic converters in harmonic mitigation and renewable energy conversion applications. In this context, this special session is primarily intended to address the concern of excessive harmonic component and their adverse effects on the industrial appliances.

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Topics of interest include, but are not limited to:

- Power quality issues
- Active and passive harmonic filters in industrial applications
- Application of power electronic converters in wind and solar
- Harmonics and power quality standards: An industry update
- Power factor correction methods
- Advanced current and voltage controller's technology for power converter
- Application of power electronic converters for ancillary services
- Neutral current mitigation techniques
- Reliable operation of grid-connected converters
- Application of artificial intelligence techniques for efficient operation
- Current trends in Power Quality Improvement