



**Tutorial Title:**

The benefits of infrared thermography testing for the thermal management in energy storage and conversion

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**Abstract:**

Power electronics components are pivotal for the development of efficient power conversion systems. New materials being applied allow for a better performance but are also extremely challenging in terms of their thermal behavior. Therefore the monitoring of exactly this thermal behavior of power electronics components and systems becomes increasingly important.

This tutorial discusses the usage of infrared thermography in monitoring the thermal stress single power electronics components as well as complete systems may undergo being operated. A sensible test set-up is influenced by the high temperatures modern power electronic materials can operate at, the small component size and the need for high switching speeds in systems for energy conversion. The very focus of the tutorial will be on hands-on test examples to explain step-by-step the critical success factors for such measurements. Participants shall be empowered to apply infrared thermography in their specific field of research based on a sound understanding of the physical fundamentals of this measurement technology.