2016 ECTC Panel Session

Power Module Integration

Tuesday, May 31, 2016, 7:30 p.m. – 9:00 p.m.

Chairs: Yoshikazu Takahashi – Fuji Electric Co. Ltd. and Patrick McCluskey – University of Maryland, College Park

To achieve highest efficiencies in power electronics, power switching technology is moving from silicon based devices to wide band gap devices (i.e., SiC and GaN). Power module integration of these wide-bandgap devices is a key issue for next-generation power systems. The wide-bandgap devices should be capable of operating at higher currents, higher frequencies, and higher temperatures than silicon while withstanding higher breakdown voltages. However, these advantages cannot be realized using conventional technologies for silicon device integration. The next generation of power module integration must meet new requirements, and will require developments in low parasitic loss, three-dimensional interconnection technologies that are thermally stable to high temperatures; embedded cooling technologies; heat tolerant, high breakdown voltage substrates; and optimization and health monitoring by embedded sensor systems.

This panel session will include presentations from international experts on the current status of wide-bandgap power module technology, its use in energy applications, and the roadmap for future developments.

1. *Klaus-Dieter Lang - Fraunhofer IZM*
2. *Bernd Roemer - Infineon Technologies AG*
3. *Hiroshi Hozoji - Hitachi, Ltd.*
4. *Yoshiyuki Nagatomo - Mitsubishi Materials Corporation*
5. *Jared Hornberger - Wolfspeed*
6. *Avi Bar-Cohen - University of Maryland, College Park*

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