Tutorial SCAPE 2019

12 May 2019, KISTA

Sunday 12 May

09:00 - 09:30	Registration & coffee
09:30 - 10:45	*SiC Devices* **Mietek Bakowski, RISE** WBG POWER DEVICES * Properties & System benefits * Device types & related issues * Material & technology curves * Development trends and challenges * Robustnes & Reliability
10:45 - 11:30	*Converters* **Dominik Neumayr, ETH** GOOGLE LITTLE BOX RELOADED – Advances In Ultra-Compact GaN Based DC/AC Power Conversion * Aim: worldwide smallest air-cooled 2kVA PV inverter * Comprehensive analysis of converter topology, semiconductors and passives * Calorimetric soft-switching loss measurements of WBG semiconductors * Realization of high- frequency inductors with multi-airgap magnetic cores * Comparative evaluation with other Google Little Box Challenge finalists * Experimental results to back up claim of 250W/in3 power density with 2-level topology
11:30 - 13:00	Lunch
13:00 - 13:45	*Converters* **Dominik Neumayr, ETH** GOOGLE LITTLE BOX RELOADED (continuation)
13:45 - 14:30	*WBG materials* **P.S. Raghavan, GT Advanced Technologies** UNDERSTANDING AND MANAGING DEFECTS IN SILICON CARBIDE * Power electronics market and wideband gap semiconducting materials * Silicon carbide substrate production * Defects in Silicon Carbide substrate & epilayer * Reduction of defects & influence on SiC devices * Optimum price point of SiC substrate to compete against silicon
14:30 - 15:00	*Coffee*
15:00 - 15:45	*Electrical characterisation* **Andreas Huerner, Infineon** CLEAN SWITCHING OF SiC DEVICES
15:45 - 16:30	*Packaging* **Tag Hammam, Swerim** POWER ELECTRONICS PACKAGING * Overview of package alternatives * main functions * mechanical & thermal considerations * material properties
16:30	End of tutorial

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