DeciElec Embedded Systems

CONFERENCE PROGRAM

THURSDAY SEPTEMBER 23rd, 2021

09:20 - 09:50 **LightBattery Pack for high power applications**

Electric and hybrid propulsion systems require a battery pack with very high performance, especially in terms of power density. In the Clean Sky 2 LiBAT project (funded by the European Union), a consortium formed by the companies TWT Gmbh and Lion Smart Gmbh, supported by the Universities of London City and Liverpool John Moores, has developed and tested an ambitious battery pack prototype integrating thermal management and power conversion functions. For this, innovative multi-level inverter technology is used to convert electrical power while minimizing hardware. The presentation describes the developed technology, and emphasizes the contribution of simulation throughout development.

Jean-Marc Le Peuvédic, Expert Engineer, Embedded Systems **DASSAULT AVIATION**

DASSAULT AVIATION

Julia Eckhardt, Development Engineer and Project Manager **LION SMART**

LION Smart

Dr. Jan Dahlhaus, Business Unit Manager **TWT GMBH SCIENCE & INNOVATION**

TWT

10:30 - 11:00

SiCRET : Silicon Carbide Reliability Evaluation for Transport

The project deals with the maturity assessment of Silicon Carbide (SiC) power semiconductor technology by: i) taking in consideration the most advanced commercial and quasi-commercial solutions, ii) tackling the most limiting drawbacks by systematically investigating the underlying physics of failure for given usage profile; iii) establishing guidelines to define adequate qualification test strategy depending on application use profile ; iiii) definition of qualification test strategy and establishment of mitigation solution such as design guidelines/recommendations (SOA / Robustness / Derating rules for Safety Margins).
Enable end-user to overcome the barriers to adoption and accelerate time-to-markets

Fabio COCCETTI, PhD, HDR Head of the Reliability Competence Centre Greener Technologies **IRT SAINT EXUPERY**

11:05 – 11:35

Novel encapsulation resin with high thermal conductivity for the protection of power module in harsh envi-ronment: PROTAVIC PTS 80001

This workshop will present a single-component liquid electrical insulating resin with very high thermal conductivity (> 4.2 w / mK) and polymerization at room temperature, meeting the specifications of the electronics industry, in particular for encapsulation of power electronic components when they are subjected to harsh environments requiring very high heat dissipation such as power converters or battery chargers based on SiC and GaN technologies.

Simon Malandain, Sales Director **PROTEX INTERNATIONAL Group**

11:40 – 12:10

Electrification of embedded systems: Passive components in front of electrical and thermal requirements

In embedded systems, research of electrical performances is associated to weight and volume reduction. The result is important thermal and electrical constraints. Associating technical skills of its different activities (bus bars, thermal management, capacitors, …), Mersen offers to answer to these challenges. First, developing laminated bus bars with optimized designs (very low inductance) and working on integration in power systems. But also improving thermal management, thanks to more thermal resistant components (bus bars up to 180°C) or with high-efficiency cooling solutions.

Thomas Fouet, R&D & Innovation Manager – Busbar Product Line **MERSEN**