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| news +++ PCIM EuropeNuremberg, 11 – 13 June 2024 |
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## Award winners of the PCIM Europe Conference 2024 announced

Stuttgart, 11.6.2024. As the PCIM Europe Conference commences, there are already winners to announce. Five exceptionally good submissions were selected by a jury for their outstanding work.

Since 2008, the PCIM Europe Conference has been recognizing noteworthy entries and promoting young talent in the power electronics industry at its annual awards ceremony. The winning submissions will be presented by the award winners at the conference from 11 – 13 June 2024 in Nuremberg. The PCIM Europe Advisory Board, chaired by Prof. Dr. Leo Lorenz, ECPE, selected the top five from over 500 submissions. The criteria for the awards were the topicality, relevance and quality of the submissions.

The Best Paper Award recognizes the three most outstanding submissions overall. Engineers aged 30 and under were eligible to apply for the Young Engineer Award. Since 2022, the Young Researcher Award has been presented to an author up to the age of 30 from the field of science and research institutions.

The awards were presented by Prof. Dr. Leo Lorenz and this year's conference sponsors Littelfuse, Mitsubishi Electric and Semikron Danfoss during the conference opening and award ceremony at the PCIM Europe Conference 2024. The winners of the awards will also receive prize money of €1,000.

Winners at a glance:

* Best Paper Award:
* **Bhaskar Chatterjee, Robert Bosch, Germany**

A Partial Load Three-Phase Triangular Current Mode Modulation Concept with an Optimized Filter Inductor for High Efficiency Traction Drives

* **Michael Hanf, University of Bremen, Germany**

Corrosion Resistant Packaging for Power Semiconductor Modules – Modified Insulation Materials for Contaminated Environments

* **Dennis Helmut, Universität der Bundeswehr München, Germany**

Characterization of Power-Module Parasitics: Sub-Nanosecond Large Signal Pulsing vs. Double-Pulse Testing

* Young Engineer Award:
* **Adriana Campos, SuperGrid Institute, France**

CO2 Footprint of Medium Voltage DC Solid State Transformer

* Young Researcher Award:
* **Andreas Horat, ETH Zurich, Switzerland**

Highly-Compact Bearingless Axial-Flux Motor for a Pediatric Implantable Fontan Blood Pump

**Abstracts of the Best Papers:**

**Bhaskar Chatterjee, Robert Bosch, Germany**

A Partial Load Three-Phase Triangular Current Mode Modulation Concept with an Optimized Filter Inductor for High Efficiency Traction Drives

This paper introduces a partial load three-phase Triangular Current Mode (TCM) modulation concept for high efficiency traction drives. The focus is on the design of the TCM filter inductor on the AC node of the inverter. An optimized inductor design is presented with low power-loss and high power-density.

**Michael Hanf, University of Bremen, Germany**

Corrosion Resistant Packaging for Power Semiconductor Modules – Modified Insulation Materials for Contaminated Environments

The increasing electrification of high-power applications in various environments leads to more complex mission profiles and reliability issues for power semiconductor devices. This can lead to corrosion mechanisms induced by contaminants like hydrogen-sulphide (H2S) or similar species. To increase the robustness of IGBT-modules against H2S-driven failure mechanisms, this study will show modified insulation materials to inhibit the relevant corrosion products.

**Dennis Helmut, Universität der Bundeswehr München, Germany**

Characterization of Power-Module Parasitics: Sub-Nanosecond Large Signal Pulsing vs. Double-Pulse Testing

In the evaluation of parasitics within modern power modules, two methodologies have been applied: the sensor gap TLP (sgTLP), which utilizes Time Domain Reflectometry with pulses that mirror power electronics conditions and notably does not require a current probe, and the established double-pulse testing (DPT). Both techniques aim to offer a thorough insight, with DPT serving as a reference to validate and complement the sgTLP findings for module optimization.

**Abstract of the Young Engineer Award Paper:**

**Adriana Campos, SuperGrid Institute, France**

CO2 Footprint of Medium Voltage DC Solid State Transformer

Power converters are a key technology to support the massive integration of renewable energy sources and achieve carbon neutrality by 2050. It is therefore important to assess their environmental impact. This work proposes a methodology for the environmental assessment of DC Solid State Transformer using Life Cycle Analysis and it estimates the emissions of the DC SST for different operating frequencies.

**Abstract of the Young Researcher Award Paper:**

**Andreas Horat, ETH Zurich, Switzerland**

Highly-Compact Bearingless Axial-Flux Motor for a Pediatric Implantable Fontan Blood Pump

A pediatric implantable rotary blood pump (RBP) is under development in a research collaboration between the ETH Zurich, the University of Innsbruck, and the Medical University of Vienna. The RBP is driven by a small bearingless dual-stator axial-flux PMSM, providing 2.2 mNm of torque at a rotational speed of 5500 rpm. The paper provides details about bearing force generation, the sensors needed for accurate position estimation and demonstrates stable levitation control on a hardware prototype.

Further information on the event, the program and how to purchase a ticket can be found at [pcim.mesago.com/nuernberg/en.html](https://pcim.mesago.com/nuernberg/en.html).

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PCIM Europe

International exhibition and conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management

The PCIM Europe is held from 11 - 13 June 2024.

#### Press information and photographic material:

[Press - PCIM Europe](https://pcim.mesago.com/nuernberg/en/press.html)

#### Links to websites:

[PCIM Europe – the international event in power electronics](https://pcim.mesago.com/events/en.html)  <https://twitter.com/pcimeurope>
[https://www.facebook.com/pcimeurope](https://www.facebook.com/pcimeurope/)/
<https://www.linkedin.com/showcase/pcim-europe/>

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#### Background information on Mesago Messe Frankfurt GmbH

Mesago, founded in 1982 and located in Stuttgart, specializes in exhibitions and conferences on various topics of technology. The company belongs to the Messe Frankfurt Group. Mesago operates internationally and is not tied to a specific venue. With around 160 members of staff Mesago organizes events for the benefit of more than 3,300 exhibitors and over 110,000 trade visitors, conference delegates and speakers from all over the world. Numerous trade associations, publishing houses, scientific institutes and universities work with Mesago closely as advisers, co-organizers and partners. ([mesago.com](https://corporate.mesago.com/events/en.html))

#### Background information on Messe Frankfurt

[www.messefrankfurt.com/background-information](http://www.messefrankfurt.com/background-information)

#### Sustainability at Messe Frankfurt

[www.messefrankfurt.com/sustainability-information](https://www.messefrankfurt.com/frankfurt/en/press/boilerplate.html#sustainability)