

# CIPS 2024

## 13<sup>th</sup> International Conference on Integrated Power Electronics Systems

March, 12 – 14, 2024,  
Düsseldorf, Germany

### Conference focus

In the next decades, power electronic system development will be driven by energy saving systems, intelligent energy management, power quality, system miniaturization and high reliability. Monolithic and hybrid system integration will comprise advanced device concepts including wide bandgap devices, new packaging technologies and the overall integration of actuators/drives (mechatronic integration).

CIPS is consequently focused on the following main aspects:

- **assembly and interconnect technology for power electronic devices and converters**
- **integration of hybrid systems and mechatronic systems with high power density**
- **systems' and components' operational behaviour, reliability and availability**

Basic technologies for integrated power electronic systems as well as upcoming new important applications will be presented in interdisciplinary invited papers.

In 2024 the successful story of CIPS will continue as the conference's focus is today more important than ever – increasing functionality, energy efficiency and system reliability while decreasing cost.

We invite all engineers and scientists coming from industry and academia engaged in power electronics-related

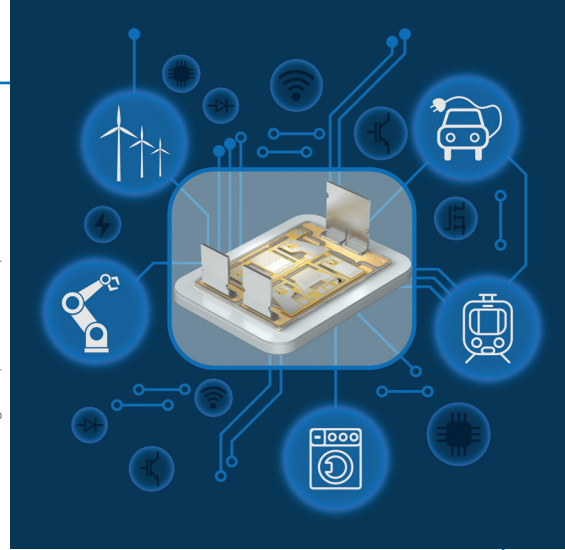
- system development
- component development
- reliability engineering
- basic and applied research

to share their research and technical achievements joining CIPS 2024.



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Picture: Sarah Rugen + (center module) Semikron



### Conference topics

Applications are wide spread over areas such as

- transportation: automotive, railway, aircraft
- power electronics in the grid, in particular for renewable energy: wind, solar ...
- drives and power supplies

#### 1. Components to be integrated

- advanced silicon devices and monolithic integration
- wide bandgap devices and monolithic integration
- gate drivers
- passive components
- sensors and actuators

#### 2. General aspects of packaging

- system and component packaging
- assembly concepts, embedded power, 3D integration
- new materials incl. interface materials and interconnects
- additive manufacturing
- high voltage insulation
- design for high temperature applications
- cooling concepts
- multidomain CAD and design tools

#### 3. Power packages and modules

- bare chip packaging
- discrete semiconductor packages
- hermetic semiconductor packages
- power semiconductor modules
- heterogeneous integration, power system-in-package

#### 4. System and application aspects

- mechatronic systems and their applications
- integration of power electronics into electric machines
- challenges of fast switching on circuit/system level - winding insulation, bearing currents, earth leakage, touch current, ...
- integration with sensors and actuators
- overall system optimisation

#### 5. Reliability and availability

- reliability requirements, mission profiles
- robustness validation, physics of failure, failure analysis
- modelling and simulation of lifetime
- intelligent reliability testing
- prognostics and health management
- fault tolerant designs and applications

#### 6. Clean switching, electromagnetic compatibility (EMC)

- parasitics optimization: electromagnetically optimized design
- oscillation free design
- symmetric paralleling of power semiconductors
- design of drivers for improved switching waveforms
- EMC interferences reductions: optimized control, active filter and passive filter design
- EMI filter integrations: material, component design, implementation
- integrated sensors and high bandwidth measurement

Please select the most appropriate topic for your contribution. Please submit even if you cannot find the perfectly fitting topic. As long as they are interesting enough, all contributions are welcome!

## Call for Papers

Experts from industry and research institutes wishing to present results of their recent research are cordially invited to submit a paper. Accepted papers will be presented in either oral or poster sessions.

Please submit a pdf formatted abstract in English with a length of two pages including figures, tables & references showing summary, motivation, approach and results. The paper should be headed by title, authors' names and affiliations.

Please register your paper using the EDAS online registration at [www.cips.eu](http://www.cips.eu). If you have already a personal account, please login with your username and password. Otherwise create a new account first and then register your paper.

## Paper Review

A two-stage review process will be applied:

1. The Technical Program Committee will review the abstracts and decide upon the acceptance.
2. Each full paper will be reviewed by peer reviewers. It shall be
  - within conference scope
  - fulfilling the requirements regarding clarity, presentation, innovation and possible realisation
  - readable in the proper format as defined by IEEE.

If this would not be the case, the author will be requested to send a revised paper for further review.

## Please note:

- After acceptance, the authors are asked to submit the full paper with a length of 4 to 8 pages for publication.
- Papers previously presented and published in the Conference Proceedings of CIPS can be considered for publication in IEEE Transactions on Power Electronics when improved with additions beyond the conference paper, which needs to be referenced, cf. Guidelines for Manuscript Submission to IEEE Transactions on Power Electronics. Correspondingly an open access publication is possible in the IEEE Open Journal of Power Electronics (OJPEL).
- By submitting your full paper we assume that you have accepted the copyright-statement: [www.vde.com/typing-instructions](http://www.vde.com/typing-instructions).
- After the conference, the presentations will be made available for all participants on a password protected file server.

## Chairs

**General** Leo Lorenz, ECPE e.V.

**Chairs** Thomas Harder, ECPE e.V.

**Technical** Andreas Lindemann,

**Chairs** Otto-von-Guericke-University Magdeburg

Nando Kaminski, University of Bremen

Johann W. Kolar, ETH Zürich

Dieter Silber, University of Bremen

Eckhard Wolfgang, ECPE e.V.

## Important Dates

<b>Deadline Abstract Submission</b> .....	<b>31.08.2023</b>
Notification of preliminary Acceptance .....	16.10.2023
<b>Full Paper Submission Deadline</b> .....	<b>30.11.2023</b>
Notification of Acceptance Full Paper .....	12.01.2024
<b>Final Paper Submission Deadline</b> (if modifications required) .	<b>22.01.2024</b>
Notification of Acceptance Final Paper for publication .	15.02.2024
Deadline for authors registration .....	19.02.2024
<b>Conference start</b> .....	<b>12.03.2024</b>

## Organised by

### VDE

Association for Electrical, Electronic & Information Technologies

VDE is one of the largest technical and scientific associations in Europe with more than 32 000 members.

[www.vde.com/en](http://www.vde.com/en)

### ECPE

ECPE European Center for Power Electronics e.V.

The industry-driven research network for power electronics in Europe with more than 200 member organisations is promoting research, education, training and public relations in power electronics.

[www.ecpe.org](http://www.ecpe.org)

## Conference venue

The CIPS 2024 conference will take place at  
CCD Congress Center Düsseldorf - Düsseldorf Congress  
Stockumer Kirchstraße 61  
40474 Düsseldorf

## Discover Düsseldorf

The capital of North-Rhine Westphalia is a key hub of international business, research and education. Düsseldorf's infrastructure makes travelling by car, train and airplane easy. A walk on the bank of the Rhine river is most enjoyable before diving into the unique pub scene in the old town or going for shopping on the glamorous Königsallee.

## Contact

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## Sign up for the Exhibition!

The CIPS Conference will be accompanied by an exhibition which is well appreciated by the conference delegates. It gives all attendees and exhibiting companies enough space for networking. Do not miss the chance to book your space on time.

Details at:

[www.cips.eu](http://www.cips.eu)