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Read more about our research on ultra-compact/efficient converter systems, ultra-high BW switch-mode power amplifiers, Solid-State Transformers, etc. Research Activities and Achievements ??? Power Electronic Systems Laboratory | ETH Zurich



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D-ARCH Architecture ; D-BAUG Civil, Environmental and Geomatic Engineering ; D-BIOL Biology ; D-BSSE Biosystems Science and Engineering ; D-CHAB Chemistry and Applied Biosciences ; D-EAPS Earth and Planetary Sciences ; D-GESS Humanities, Social and Political Sciences ; D-HEST Health Sciences and Technology ; D-INFK Computer Science ; D-ITET Information ???

PES is endowed with 6 PhD research laboratories and an EMI laboratory for conducted emission measurements. It is equipped with the latest generation of AC, DC and medium-voltage power ???

38th Applied Power Electronics Conference and Exposition (APEC 2023), Orlando, FL, USA March 19-23, 2023: 2023: Novel Bidirectional Single-Stage Isolated Three-Phase Buck-Boost PFC Rectifier System: D. Menzi: Download Best Presentation Award (PNG, 310 KB) 36th Applied Power **Electronics Conference and Exposition (APEC** 2021), June 14-17, 2021: 2021

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We are pleased to announce that the Editorial

Board of the IEEE Transactions on Power Electronics (TPEL) has selected the paper entitled "100 kHz Large-Signal Bandwidth GaN-Based 10 kVA Class-D Power Amplifier With 4.8 MHz Switching Frequency" (author: Dr. Pascal Niklaus et al.) as the FIRST PRIZE PAPER of the year 2023.

Lectures on Power Electronics and Mechatronics You are invited to attend the presentation of Prof. Dr. Markus Makoschitz, AIT Austrian Institute of Technology GmbH, about "Multi???Megawatt Medium???Voltage Fast Charging: Concepts and Challenges" on July 19, 2024 at 10.30 h in room ETZ E81, Gloriastrasse 35, 8092 Zurich.

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Moreover, a novel single-to-three-phase AC/AC converter utilizing the moment of inertia of the supplied electric motor for power pulsation buffering, a novel self-bearing integrated linear-rotary actuator concept and a self-bearing pump capable of processing phosphorus acid at 250 °C have been patented and/or experimentally verified.

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SiC Power Electronics for Grid and Transportation Applications. Download Abstract (PDF, 165 KB) Download Presentation (PDF, 8.8 MB) 09.10.2023: Prof. Dr. Jin Wang The Ohio State University, Columbus, OH, USA: Medium-Voltage Power Electronics & Integrated Liquid Metal-Based Cooling. Download Abstract (PDF, 153 KB) Download Presentation (PDF, 4.8

Power Electronic Systems Laboratory Main Navigation Menu. Homepage; PES News; The Institute; Education; Research; Publications; Awards; Outreach; Services. Student portal; Alumni association; Staffnet; Contact; lock Login; Search. search. en. Departments. ETH Zurich chevron_right; D-ITET chevron TU Vienna, about "Power Electronics Trends

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The Computer Vision Laboratory, ETH Zurich, works on the computer-based interpretation of 2D and 3D image data sets from conventional and non-conventional image sources. The research at the Laboratory for High Power Electronic Systems (HPE) focusses on high power converter systems including operation at medium voltages required for example

Moreover, a novel Q2L modulation scheme enabling

ultra-compact multi-level ???ying capacitor converters has been derived and an ultra-high bandwidth triple-interleaved three-level ???ying capacitor 600 V GaN HEMT 4.8 MHz power ampli???er has been implemented featuring an extreme power density of 50 kW /dm?.

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Research Areas. Founded in 2010, the Laboratory for High Power Electronic Systems (HPE) at ETH Zurich focuses its research on the design and development of ultra-efficient, high-power-density and reliable power conversion systems operating at low to high voltage levels and power levels ranging from a few watts to megawatts.

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The research of the Power Systems Laboratory at ETH is addressing important questions and problems in the power industry described above. In the individual projects described system theory is used to study and design solutions for the power systems incorporating the most advanced communication and information technologies.

Future power electronic converters have to be seen as intelligent systems, which actively monitor and diagnose their source and load environment based on different types of models and actuations, aggregate data and distill information, receive data/updates from and report status information to the cloud ??? a type of system best denominated as

Cognitive Power Electronics 4.0.

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In July 2002, he joined the Power Electronic Systems Laboratory (PES), ETH Zurich for working towards his Ph.D. degree and concentrated on the electromagnetic integration and optimization of resonant converter systems. In August, 2010 he has been appointed as Associate Professor and Head of the Laboratory for High Power Electronic Systems

From very small (mobile phones, computer power supplies) to very large systems (trains, wind turbines, high voltage power lines), the power ranges from the Watt to the GigaWatt. Technological advancements in power electronics enable new applications to emerge and performance improvement in existing applications.

Current measurement systems and current sensors are important devices that are indispensable in today's electrified world. Accurate current measurement is important in a large variety of applications such as power and current control in power converters, quality monitoring, load balancing or fault detection.







The research projects at the PES cover a wide range of application areas and all basic forms of power electronic energy conversion, and are carried out at present by 19 PhD students supported closely by 2 Fellow Researchers, 1 Postdoc and Prof. Kolar. This also includes a research group focusing on advanced mechatronic systems.

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We are delighted to announce that our March 2023 cover feature "Monolithic Bidirectional Power Transistors" was recipient of the annual 2024 APEX Award for Publication Excellence under the category of "New Technology".









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