Products Newsletter

Emerging Trends, Cutting-Edge Technologies, and Research Breakthroughs in Power Electronics

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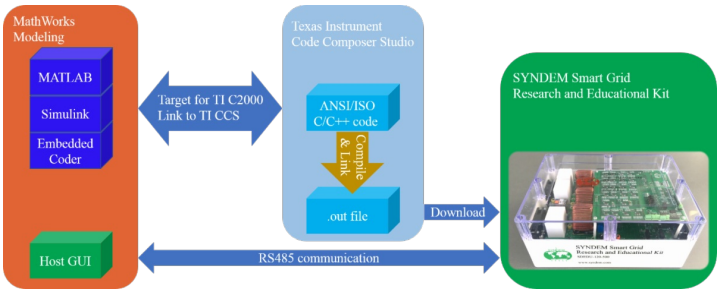
November 20, 2020 | Issue 7

IEEE Power Electronics Magazine



To empower next-generation engineers with hands-on skills in control and power electronics, Qing-Chang Zhong, Yeqin Wang, Yiting Dong, Beibei Ren, and Mohammad Amin have developed a versatile experimental tool that lowers the barriers to go real from simulations to experiments for various power electronic systems. Their Smart Grid Research and Educational Kit, which is a reconfigurable, open-source, multifunctional power electronic converter with the capability of directly downloading codes from MATLAB/Simulink. Besides minimizing the time, cost, and efforts needed to develop hardware systems, it removes the burden of coding. Read more in the September 2020 issue of IEEE Power Electronics Magazine!

IEEE Transactions on Power Electronics (TPEL)

The December 2020 Issue presents **86** papers with the latest research in power electronics!

December Highlighted Papers:
On Beat Frequency Oscillation of Two-Stage Wireless Power Receivers
Kerui Li, Siew-Chong Tan, and Ron Shu Yuen Hui

Novel iGSE-C Loss Modeling of X7R Ceramic Capacitors
David Menzi, Dominik Bortis, Grayson Zulauf, Morris Heller, and Johann W. Kolar

December Papers with Active/Multimedia Content
Analysis and Design of the LLC LED Driver Based on State-Space Representation Direct Time-Domain Solution by Maikel Menke, João P. Duranti, Leandro Roggia, Fábio E. Bisogno, Rodrigo V. Tambara, Álysson R. Seidel provides a PowerPoint Presentation elucidating each step development of the proposed design procedure during the design of the LLC LED driver. In addition, the authors offer *three* Wolfram Mathematica notebook script files.

IEEE Transactions on Power Electronics Letters

TPEL letters continue its strong growth in 2020. In this last issue of TPEL in December 2020, there are a record number of short letters published: ***18***! The topics of the published letters include new control strategies and topologies of power converters, semiconductor devices and drivers, simulation and modelling techniques, as well DC grid applications. Enjoy reading those very interesting short articles.

https://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=9158598&punumber=63

IEEE Open Journal of Power Electronics (OJ-PEL)

Collection #2

Topic: Model Predictive Control

S. Walz, M. Liserre; "Hysteresis Model Predictive Current Control for PMSM with LC Filter Considering Different Error Shapes"

W. Rohouma, M. Metry, R. Balog, A. Peerzada, M. Begovic; "Adaptive Model Predictive Controller to Reduce Switching Losses for a Capacitor-less D-STATCOM"

M. Metry, R. Balog; "An Adaptive Model Predictive Controller for Current Sensorless MPPT in PV Systems"

For the month of November, the IEEE Open Journal of Power Electronics (OJ-PEL) will be releasing more collections of papers.

OJ-PEL's second collection: papers based on model predictive control:

Hysteresis Model Predictive Current Control for PMSM With LC Filter Considering Different Error Shapes
by Stefan Walz, Marco Liserre

Adaptive Model Predictive Controller to Reduce Switching Losses for a Capacitor-Less D-STATCOM
by Wesam Rohouma, Morcos Metry, Robert S. Balog, Aaqib Ahmad Peerzada, Miroslav M. Begovic

An Adaptive Model Predictive Controller for Current Sensorless MPPT in PV Systems
by Morcos Metry and Robert Balog

Read the entire OJ-PEL catalog!

Are you following IEEE PELS's social media pages? Be the first to know when more of our special collections are released!

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IEEE Transactions on Transportation Electrification (TTE)

TTE focuses on components, sub-systems, systems, standards, and grid interface technologies related to power and energy conversion, propulsion, and actuation for all types of electrified vehicles including on-road, off-road, off-highway, and rail vehicles, airplanes, and ships. Prospective authors are invited to submit original contributions or survey papers-- including papers published in a Conference Record or Conference Proceedings of a conference sponsored by any of the sponsoring IEEE societies of TTE (PELS, IAS, PES, VTS, IES, and RS) with new results added.

The journal currently has an open call for the "***Special Issue on Novel Hybrid and Electric Powertrain Architectures***" with a ***submission deadline: February 2021***. Guest Editors for this SI include Dr. Saeid Haghbin from Elbind Elektronik AB, Sweden; Dr. Amir Sajjad Bahman from Aalborg University, Denmark; and Dr. Hao Chen from Tesla, USA.

The Special Issue on More Electric Aircrafts is now available on IEEE Xplore! Watch out for recently closed issue on *Failure Analysis and Prevention in Electrified Transportation Applications* in December.

More information about the upcoming Special Issue and other submission details are available at https://www.ieee-pels.org/publications/ieee-transactions-on-transportation-electrification.

Review IEEE PELS Videos? Volunteers Needed

Can you help IEEE PELS review **basic** power electronics instructional videos?

Find out more and sign up at: Video Reviewer

Complete a single review or become a regular reviewer! We appreciate your time and expertise!

Call for Papers: OJ-PEL and ITRW

Special Compendium on Wide Bandgap Power Semiconductors for the International Technology Roadmap for Wide Bandgap Power Semiconductors (ITRW)

Papers demonstrating the potential of wide-bandgap technology for power applications, address technology bottlenecks, and demonstrate potential breakthroughs are particularly welcome!

Materials and Devices (Current state-of-the-art and forecasting)

- SiC Power Devices
- GaN Power Devices (HEMTs, integration, and vertical GaN)
- Ultra-WBG materials

Packaging and integration, including materials, processes, architectures and tools:

- Packaging and integration for high speed switching
- Higher voltage (>10 kV) packaging
- Packaging for operation at higher temperatures and in other harsh environments

System Integration and Application of SiC and GaN

- Novel applications and converter topologies enabled by GaN and SiC
- Design and Simulation methods for GaN and SiC-based system designs
- Converter design, control, and protection
- Passives, cooling and integration for WBG converters

Submissions Due December 15, 2020!

IEEE Transportation Electrification Community: Call for Articles

For the 2021 first quarter IEEE Transportation Electrification Community eNewsletter, the theme will be Electric Buses. Topics include: E-bus powertrains, range-extended e-buses, hybrid electric buses, battery-powered buses, supercapacitors/ultracapacitors for e-buses, overhead charging/flash charging, conductive charging, wireless charging, power converters/traction inverters, electric machines, and traction drives for e-buses.

For more information:
https://tec.ieee.org/images/files/newsletter/Call_for_Articles/TEC-CFA_Electric_Buses_2021_1st_Quarter.pdf

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