Editorial: Special Issue on High-Frequency-Link Power-Conversion Systems, 2014

RECENT advances in solid-state semiconductors, magnetic and capacitive materials, and microelectronics technologies, coupled with the growing need for high power density, low footprint space, and reduced weight, without compromising efficiency, cost, and reliability, has provided the impetus for high-frequency-link power-conversion systems. While such a need has been everlasting in power electronics, new technologies and sciences have fueled the impetus for newer growth areas that transcend conventional applications. The potential demand for such high-frequency-link power-conversion systems is growing leaps and bounds encompassing renewable and alternative energy systems, power grid, smart appliances, telecommunication, power quality, compact magnetics, and electrical-transportation applications to name only a few. A closer scrutiny of the high-frequency-link power-conversion technology and its wide application point to the need for a broader over view as well as deeper understanding of the technologies that lay the foundation for the continual growth of this emerging power electronics domain.

The overall objective of this IEEE Power Electronics Society (PELS) Special Issue on high-frequency-link power-conversion systems is, therefore, to bring out the highlights of the ongoing world-wide activities in this area of advanced research to expose, analyze, and resolve the critical research and developmental challenges. The Special Issue received a total of 132 manuscripts for review considerations of which 35 manuscripts have been accepted for final publication. These publications encompass all four broad categories of high-frequency-link power-conversion systems (i.e., dc/ac, ac/dc, ac/ac, and dc/dc converters) with broad applicability in the following areas of application: photovoltaic energy, wind energy, electric vehicles, fuel-cell energy, energy storage, uninterruptible power systems, motor drives, high-frequency-ac power distribution systems, high-voltage-direct-current transmission, active load emulator, smart/micro grid, solid-state transformers, induction heating, railway traction drive, pulsed power, plug-in hybrid-electric-vehicle, battery charging, inductive power transfer. The contributions of the articles compiled in this special issue are multifold encompassing topologies with plurality of stages and/or levels, modulation, loss-mitigating switching, high-frequency magnetics, control, modeling, switched-capacitor power conversion, power-factor correction, and broad overview of the Special-Issue subject area.

Of course, without the overwhelming contributions of the authors this Special Issue would not have materialized. Nor, would it have seen the light of the day without the voluntary and time-bound services of the numerous reviewers who on plurality of occasions provided multitude of insightful and constructive feedbacks. We express our indebtedness to both of these societal representatives.

Thanks are also due to all of the Guest Associate Editors to whom we owe our sincerest gratitude for their tireless services notwithstanding their own busy professional life to ensure the efficacy and sanctity of the review process. The following Guest Associate Editors have contributed to the establishment of this special issue: I. Barbi (University Federal de Santa Catarina, Florianópolis, Brazil), P. J. Wolfs (Central Queensland University, Rockhampton, Australia), B. Ferreira (Delft University of Technology, Delft, Netherlands), L. Chang (University of New Brunswick, Fredericton, NB, Canada), A. M. Trzynadlowski (University of Nevada, Reno, NV, USA), R. W. De Doncker (RWTH Aachen University, Aachen, Germany), R. Burgos (Virginia Polytechnic Institute and State University, Blacksburg, VA, USA), A. Kawamura (Yokohama National University, Yokohama, Japan), I. Batarseh (University of Central Florida, Orlando, FL, USA), G. Holmes (RMIT, Melbourne, Australia), S. Bhattacharya (North Carolina State University, Raleigh, NC, USA), P. Enjeti (Texas A&M University, College Station, TX, USA), T. Shimizu (Tokyo Metropolitan University, Tokyo, Japan), B. Ozpineci (Oak Ridge National Laboratory, Oak Ridge, TN, USA), A. Agarwal (Department of Energy, Washington, DC, USA), K. Mino (Fuji Electric, Tokyo, Japan), Y. Xue (Siemens, Princeton, NJ, USA), L. Casey (Satcon, San Jose, CA, USA), R. Raju (General Electric, Fairfield, CT, USA), P. M. Barbosa (Delta, Taipei, Taiwan), P. Tenca (General Electric, Munich, Germany), J. Leach (Kyma Technologies, Raleigh, NC, USA), S. Leslie (Powerex, Harrison, OH, USA), B. S. Jacobson (Raytheon, Waltham, MA, USA), P. Friedrichs (Infineon, Neubiberg, Germany), and R. M. Schupbach (Cree, Durham, NC, USA).

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Dr. Mazumder received several prestigious awards including University of Illinois's University Scholar Award, IEEE PELS Transaction Prize Paper Award, IEEE Future Energy Challenge Award, ONR Young Investigator Award, and NSF CAREER Award. He serves as the Guest Editor-in-Chief and as an Associate Editor of multiple IEEE Transactions and was the first Editor-in-Chief for *Advances in Power Electronics*. He has served and is serving in high-profile capacities on leading PELS Conference TPCs, PELS TCs, IEEE Working Group, and high-profile NSF panels.

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