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Use of D-STATCOM for Solid State LED Lamp Harmonic Power Mitigation

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Robert S. Balog received the B.S. degree in electrical engineering from Rutgers, The State University of New Jersey, New Brunswick, NJ, USA in 1996, and the M.S. and Ph.D. degrees in electrical engineering from the University of Illinois at Urbana-Champaign, Urbana, IL, USA, in 2002 and 2006, respectively. He joined Texas A&M University, College Station, TX, USA, in 2009 where he is currently a tenured full Professor in the Department of Electrical and Computer Engineering, Director of the Renewable Energy and Advanced Power Electronics Research Laboratory (www.REAPERlab.com), and co-director of the National Science Foundation Industry/University Cooperative Research Center on Next Generation Photovoltaics. He also holds a joint faculty appointment with Texas A&M University at Qatar where he is currently in-residence.

Prior to joining A&M, from 1996 to 1999 he was an Engineer with Lutron Electronics, Coopersburg, PA, USA where he developed lighting controls and systems. From 2005 to 2006, he was a Research Consultant with the U.S. Army Corp of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory, Champaign, IL, USA where he was involved in researching concepts for military microgrids. From 2006 to 2009, he was a Senior Engineer at SolarBridge Technologies, Champaign, IL, USA where he was a co-inventor and lead the technical development team for a module-integrated microinverter he developed while a graduate student at the University of Illinois. As a non-equity technology founder, he invented the original technologies, directed the initial engineering team, and was part of the executive team that secured the $6 million Round A funding from a Tier I venture capital firm.

His current research interests include power electronic converters and balance-of-systems technologies for solar photovoltaic energy, microinverters for ac photovoltaic modules, arc fault detection for dc and photovoltaic systems, highly reliable electrical power and energy systems including dc microgrids, and power electronics at the grid edge including reactive power and harmonic power compensation in distribution systems.

Dr. Balog is a Registered Professional Engineer in the states of Illinois and Texas. He is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) where he is recently served as a Distinguished Lecturer for the Power Electronics Society (PELS) and Chair of the Mentorship Committee. He has previously served as an elected Member-at-Large of the Administrative Committee, chair of the Membership committee, and inaugural chair of the Graduates of the Last Decade committee (now called Young Professionals). He was the Technical Program Chair for the 2016 IEEE Energy Conversion Congress and Exposition which is internationally recognized as one of the flagship conferences on power electronics.

He received the inaugural IEEE Joseph J. Suozzi INTELEC Fellowship in 2001 for his work on power electronics in telecommunications systems. Has been a member of Eta Kappa Nu, Sigma Xi, National Society of Professional Engineers, American Solar Energy Society, and Solar Electric Power Association. He was recognized as an external member of the Hungarian Academy of Science in 2011. He was the recipient of the 2011 Rutgers College of Engineering Distinguished Engineer Award. Dr. Balog is an inventor on 20 issued U.S. patents. He received a 2017 Texas A&M System Technology Commercialization Patent Award. In 2019 he was elected into the National Academy of Inventors as a Senior Member. He has published nearly 200 peer-reviewed conference and journal papers, is co-author of the book “Microgrids and other Local Area Power and Energy Systems” published by Cambridge University Press in 2016 and has written multiple book chapters. His h-index is 46 and has been cited over 7,600 times in the peer-reviewed scientific literature.