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# Power Converter Systems Design, Analysis and Modeling Approaches

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**Abstract:** This talk is intended to provide an overview of active research topics in the area of Energy systems at University of Alberta, Canada. High efficiency, high reliability, low system cost, and high power density are crucial factors for power electronics applications such as LED lighting, power adapters, servers, high power high voltage applications, renewable power converters, and solar micro-inverters. In this talk, power electronics design challenges for reliable high power density applications will be discussed and novel modeling techniques, topologies and control system design developed at research group at University of Alberta Power Electronics Lab (UAPEL) will be briefly presented.



**Biography:** Dr. Khajehoddin received his B.Sc. and M.Sc. specialized in Electronics and control systems in the field of Electrical Engineering from Isfahan University of Technology, Iran, and his Ph.D. in power electronics from Queen's University, Kingston, ON, Canada, in April 2010. Prior to his Ph.D. degree, he had co-founded a start-up company that was focused on the development and production of power analyzers and smart metering products for smart grid applications. During his PhD he designed and implemented compact and durable microinverters for PV grid-connected systems; leading to the spin off of SPARQ Systems Inc., where he was a Lead Research and Development Engineer toward mass production and commercialization of microinverters, from 2010 to 2013. He is currently a Professor and MEng Faculty advisor at the University of Alberta, Edmonton, Canada. He was a recipient of several awards, including Second Place Paper Award from the IEEE TRANSACTIONS ON POWER ELECTRONICS, in 2022. He is also an Associate Editor of IEEE TRANSACTIONS ON POWER ELECTRONICS, IEEE TRANSACTIONS ON TRANSPORTATION ELECTRIFICATION, and Journal of Emerging and Selected Topics in Power Electronics.



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