



PSERC WEBINAR

Miniaturizing and Advancing Power Electronics by Targeting Magnetics

Mike Ranjram

Arizona State University

Power electronics are ubiquitous and magnetic components are fundamental to their operation. These components take many forms and provide many kinds of functionality (e.g., dc filtering, energy storage, and impedance transformation), but typically share a common detriment: they dominate the weight, size and loss of the power converters they serve. In many applications today, system miniaturization is a goal. This means to decrease converter volume while reducing (or carefully distributing) losses to ensure thermal viability. Magnetics bottleneck this goal. Our group at ASU works on miniaturizing converters, and improving their capability, by designs which target mitigating these magnetic bottlenecks. We also explore leveraging the more exotic features of these components to derive new and useful functionality. In this talk, I will discuss the technologies and approaches our group is taking to miniaturize power converters, with emphasis on their magnetics.

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[LINK TO WEBINAR](#)

1:00-2:00 P.M. ET

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Mike K. Ranjram is an Assistant Professor in Electrical, Computer, and Energy Engineering at Arizona State University. He received the B.A.Sc. And M.A.Sc. Degrees in electrical engineering from the University of Toronto in 2013 and 2015, respectively, and the Ph. D. degree from the Massachusetts Institute of Technology in 2021. His main research interest is in making power electronics smaller, more efficient, and more capable, and in leveraging these improvements to enable the next generation of sustainable systems and devices. A current focus is on high-frequency power conversion and on techniques for reducing the cost, volume, weight, and loss of power magnetic components.

