

# Energy and Power Group

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**WEEKLY SEMINAR SERIES – FALL 2018**

**SPECIAL TIME**

Friday, November 30th, 2018, 1:30 – 2:30 p.m., WEB 324

## **Solar Power Electronics at the Module Level**



Patrick Chapman  
Sr. Director at Enphase Energy

### **Abstract**

Grid-interactive solar power is growing rapidly in all major segments, from small residential (<10 kW), commercial (<10 MW), to utility (up to ~1 GW). In addition to advancements in photovoltaic (PV) module and cell technology, there has been remarkable change in the power electronics used to convert PV modules to the grid. Over the last ten years, there has been a movement away from large, centralized inverters to smaller, modular inverters that distribute power conversion throughout arrays. In this presentation, I will discuss the reasons for this trend and some of the technology challenges that it has presented.

### **Bio**

Patrick Chapman is a Sr. Director at Enphase Energy, where he leads the Inverter Technology team. Before that, he was a Senior Director at SunPower Corporation, where he held a similar role in power electronics development for solar applications. Prior to this, he was a co-founder and the Chief Technology Officer at SolarBridge Technologies, Inc., which was acquired by SunPower in 2014. He has also been Willett Faculty Scholar, Grainger Associate, and Associate Professor at the University of Illinois at Urbana-Champaign. He received a Ph.D. from Purdue University in 2000, and the Bachelor's and Master's degrees in electrical engineering from the University of Missouri-Rolla in 1996 and 1997. He is a Fellow of the IEEE and has served many roles with the IEEE, including General Chair for the 2011 Applied Power Electronics Conference. He has received alumni awards from Purdue University and the University of Missouri-Rolla. He has received the National Science Foundation CAREER Award and the Office of Naval Research Young Investigator Award. He was named the Richard M. Bass Outstanding Young Power Electronics Engineer in 2006. His primary technical interests within solar power include microinverters, ACPV modules, and energy storage applications.