



SMART GRID CENTER
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WEBINAR

Design of a Robust Cyber Shield for a Grid-Connected PV System via Digital Watermarking Principle

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3:00 P.M. CDT, October 20, 2021

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In this presentation a Robust Cyber Shield for a grid connected PV System is explained. It is shown that external manipulation (attacks) on sensor measurements of a grid connected PV system can lead to instabilities or degraded performance. A sophisticated dynamic watermarking system is introduced to provide a “Cyber Shield” – a defense mechanism to detect malicious manipulation of voltage/current/P/Q sensor measurements on a grid connected PV system. Validity of the proposed approach is verified via extensive simulations and experiments in a laboratory setting.

Reference IEEE Paper: <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9528341>



Prasad Enjeti (enjeti@tamu.edu) is a member of Texas A&M University faculty since 1988 and is widely acknowledged to be a distinguished teacher, scholar and researcher. He currently holds the TI-Professorship in Analog Engineering and Associate Dean for Academic Affairs in the College of Engineering. His research emphasis on industry-based issues, solved within an academic context, has attracted significant external funding. Up until now, he has graduated 31 PhD students and 11 of them hold academic positions in leading Universities in the world. He along with his students have received numerous best paper awards from the IEEE Industry Applications and Power Electronics Society. His primary research interests are in advancing power electronic

converter designs to address complex power management issues such as: active harmonic filtering, adjustable speed motor drives, wind and solar energy systems and designing high temperature power conversion systems with wide band-gap semiconductor devices. In 2000 he was named an IEEE Fellow and in May 2004 received a distinguished achievement [Award](#) for teaching from Texas A&M University. He is the recipient of IEEE PELS R. David Middlebrook Technical Achievement Award from the IEEE Power Electronics Society. 2012.