



# CYBER-PHYSICAL SECURITY INITIATIVE

— An IEEE PELS Initiative —

IEEE CyberPELS

IEEE Workshop on Cybersecurity of Power Electronics Systems

Oak Ridge National Laboratory, Knoxville, TN

April 29 - May 1, 2019

The IEEE Workshop of Cybersecurity of Power Electronic Systems (CyberPELS) provides a common forum for industry experts, researchers, and academia to share technology updates, research findings, lessons learned, and best practices in the areas of creating and ensuring cyber-secure power and electronics systems.

The role of power electronics in power delivery and industrial applications is changing from an enabling technology, often resorted to commodity hardware boxes, to more critical infrastructure assets. Hence ensuring cybersecurity of power electronic converters is becoming increasingly important as more systems from power grid, electrified transportation, data centers, and internet-of-things utilize power electronics with embedded sensors, communications, and control mechanisms through various wired and wireless technologies. As a key element of the Cyber-Physical Security Initiative by IEEE PELS, this workshop is organized in cooperation with the Oak Ridge National laboratory.

## Topics of Interest

- Firmware compromise detection and integrity verification
- Hardening internal and external power electronics communications
- Cyber-physical attacks and approaches for hardware hardening
- Secure firmware update and patching, including over the air updates (OTAU)
- Secure designs for power electronics devices
- Integration of hardware- and software-based hardening solutions
- Prototypes, testbeds, and demonstrations
- Application specific needs and approaches for secure power electronics hardware (e.g. in distributed energy resources (DER), electric vehicle charging infrastructure, and data centers)
- Device-level and system-level cybersecurity challenges and solutions

## Participation Opportunities

**TUTORIAL:** Cyber for Power Electronics

**KEYNOTE SESSIONS:** Two keynote sessions will be held on April 30 and May 1, where leading experts from academia, industry, and research institutes will be invited to share their insights on technology developments and future trends.

**PANEL SESSIONS:** Leading experts from federal agencies, industry, and academia will be invited to discuss pressing technical issues in the areas of cyber-security in grid applications and in non-grid applications at two panel sessions on April 30 and May 1 respectively.

**ORAL AND POSTER SESSIONS:** Prospective participants are invited to electronically submit a 2-page extended abstract of their papers. Accepted papers will be integrated into IEEE Xplore while all presentations will be made available through Power Electronics Society (PELS) resource centers.

**EXHIBITION & SPONSORSHIPS:** A limited number of exhibitor and corporate sponsorship opportunities are available.

## ORGANIZING COMMITTEE

General Chair - Stacy Prowell

Technical Program Co-Chair - Madhav Manjrekar

Technical Program Co-Chair - Burak Ozpineci

Treasurer - Regan Zane

## KEY DATES

Two Page Abstract: March 1, 2019

Notification of Acceptance March 21, 2019

Final Paper Submission April 5, 2019

