

National Science Foundation CAREER Award

Renovating grid-interactive DC to AC solid-state converters into smart devices



Behrooz Mirafzal

Behrooz Mirafzal, Kansas State University electrical and computer engineering professor, has received a National Science Foundation Faculty Early Career Development, or CAREER, Award for his proposal, “Toward Grid-Interactive Converters with Diagnostic, Remedial, and Lifetime Prognostic Features for the Next Generation of Power Grids.”

Mirafzal is developing grid-tied converters to have an early detection and self-healing mechanism, which

is a long-term research plan of the U.S. Department of Energy’s Office of Electricity Delivery and Energy Reliability.

This project will create intelligent-reconfigurable converters with the capability to diagnose incipient internal and external abnormalities, and whenever possible, to take remedial actions to mitigate without direct human intervention.

Mirafzal is the director of the university’s power electronics

laboratory. Part of his award proposal was to include both graduate and undergraduate students into his research and promote a power electronics curriculum at the university.

He received his Ph.D. from Marquette University in 2005. He earned an M.Sc. in electrical engineering in 1997 from the University of Mazandaran, Iran, and a B.Sc. in 1994, also in electrical engineering, from Isfahan University of Technology, Iran.