

MEETING THE CHALLENGES FOR FUTURE POWER DISTRIBUTION COMPONENTS

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Abstract

Components play a key role in power distribution networks. Advancements in design, materials, and modeling have enabled new products to be created. Also, the incorporation of electronics and electronic sensing has also lead to many new capabilities and products not previously available. Arc fault circuit interrupters (AFCI's), web-enabled metering, and increases in power handling density are a few of the many new developments. This talk is intended to illustrate some the current development areas being investigated by the power distribution industry. The areas reviewed include molded case circuit breaker interruption performance, AFCI's, selective coordination, and web-enabled power metering. Each of these areas is of current interest to those in the industry and each area continues to evolve as new designs and ideas are implemented.

Speaker's Biographical Sketch

John J. Shea (M'89-SM'97) received his Bachelors, Masters, and PhD degrees in electrical engineering from the State University of New York at Buffalo in 1984, 1986, and 1989, respectively. Dr. Shea began his career in Pittsburgh, PA, with the Westinghouse Science and Technology Lab as a research engineer involved in testing high-power circuit breakers and design of power distribution components, electromagnetic launchers, and power supplies for shaped charges. He is currently a Specialist Engineer with the Eaton Corporation, where he manages the Plasma Physics Power Interruption Research Lab. He is involved in the research and development of advanced current limiting technology for power distribution components. Recent achievements include arc fault circuit interrupters (AFCI), hybrid power-current limiting circuit breakers, glowing connections, and ultra-current-limiting circuit interrupters for the distribution power industry. He presently holds 45 US patents and 3 trade secrets on various arc interruption, power distribution component designs, and sensor designs, written 21 journal articles and 25 conference proceedings. He has received the 2008 IEEE Holm Scientific Achievement Award and the 2002 Cutler-Hammer Innovation Award.

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