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MODELING AND DESIGN OF ELECTRIC SYSTEMS AND COMPONENTS FOR TRANSIENT STUDIES

ORGANIZED BY

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The study of electrical transients in electric systems requires a comprehensive approach that combines theoretical modeling, circuit analysis, numerical simulations, and experimental validation. Transients, caused by switching operations, lightning strikes, or electromagnetic interference (EMI), can significantly impact system performance and reliability.

Time-domain analysis plays a fundamental role in transient studies, enabling the evaluation of fast-switching phenomena, overvoltages, and resonance effects. Experimental validation through transient testing is crucial for verifying simulation results.

A robust modeling and simulation framework is essential for representing the electrical behavior of components under transient conditions. This includes lumped-parameter models, frequency- and time-domain techniques. Electromagnetic compatibility considerations are also critical to ensure that transient disturbances do not exceed regulatory limits or cause malfunction in interconnected devices.

This special session is devoted to research activities aimed at enhancing system reliability, improving fault tolerance in modern power networks through modeling, design, simulation, and testing of practical solutions.