National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Enhanced Control Strategy for Bidirectional Dual Active Bridge Converters: Integrating PI and Fuzzy Logic
Speaker	: Gaurav Kumar (520ee1015)
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Venue	: Seminar Room, EE-205
Date and Time	: 27 Dec 2024 (3:30 PM)
Abstract	: We present a PI-fuzzy controller (PIFC) optimized for energy storage systems using 28 V Li-ion batteries. The battery is charged using a separate 5kW bidirectional Phase-Shifted (PS) Dual Active Bridge (DAB) DC-DC converter, which operates at 270V/28V. This study mainly adds to the literature by developing and implementing a closed-loop fuzzy control system for the DAB converter, which is based on Lyapunov's stability analysis technique. There is trust in the PIFC parameters when using the stability criterion given by this study. The PIFC stability criteria that we developed are demonstrated to be effective using the simulation data that we provide.