

Power Area Graduate Seminar

Monday, February 11, at Noon
Room 104 Emerson Electric Company Hall

Input Voltage Control of SEPIC for Maximum Power Point Tracking

Presented by Amshumaan Kashyap, Missouri S&T

Abstract: The SEPIC (Single Ended Primary Inductor Converter) topology is an excellent choice for a maximum power point tracking (MPPT) converter in small solar (PV) energy systems. The SEPIC discussed here is used to achieve MPPT in a selective source power converter. But to achieve MPPT, the input voltage of the SEPIC, corresponding to the photovoltaic (PV) module's output voltage, must be regulated. In this seminar, the modeling of such a converter is discussed. The state space models, simulations, hardware testing and controller results are also presented.

Test Bench for Emulating Electric-Drive Vehicle Systems Using Equivalent Vehicle Rotational Inertia

Presented by Poria Fajri, Missouri S&T

Abstract: In this seminar, a new approach for emulating an electric-drive vehicle (EDV) system on a test bench setup consisting of a dynamometer, flywheel, and an electric propulsion unit is proposed. The equivalent rotational inertia of a vehicle is used to obtain a suitable control method based on vehicle and test bench dynamics. MATLAB/Simulink is used to model the test bench and simulate the control scheme for a standard driving schedule. The results obtained from MATLAB/Simulink are validated using the ADVISOR software and found to be almost the same with minor deviations.