Announcing the Final Examination of Christopher Hamilton for the degree of Master of Science

Time & Location: October 22, 2010 at 9:00 AM in HEC 450
Title: CONTROL STRATEGY FOR MAXIMIZING POWER CONVERSION EFFICIENCY AND EFFECTIVENESS OF THREE PORT SOLAR CHARGING STATION FOR ELECTRIC VEHICLES

Solar charging stations for plugin hybrid electric vehicles (PHEV) are lacking in the area of direct DC/DC charging from solar panels to PHEVs. Current technology focuses on a DC/AC and AC/DC structured system where power is first converted to the grid from the panels and then converted from the grid to the car battery. This system is much more lossy compared to a direct DC/DC charging system and the focus of this thesis is improving the overall system efficiency by charging PHEVs directly from the solar panels. The proposed system will preserve modularity and system reliability that is found in AC/DC systems as it is lacking in existing DC/DC solar charging stations. Conventional methods of solar power extraction will be used to improve the efficiency of the solar power conversion stage. In addition, the use of soft-switching DC/DC converters will be used to keep the efficiency and the power density of the DC/DC converters high.

Major: Electrical Engineering/Power Electronics

Educational Career:
Bachelor's of Electrical Engineering, 2009, University of Central Florida

Committee in Charge:
Issa Batarseh, Chair, Electrical Engineering and Computer Science
John Shen, Electrical Engineering and Computer Science
Thomas Wu, Electrical Engineering and Computer Science

Approved for distribution by Issa Batarseh, Committee Chair, on October 14, 2010.

The public is welcome to attend.