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UPEL Students Present Their Research Work at IEEE COMPEL 2016 in Trondheim, Norway | Utah State University Power Electronics Lab

USU College of Engineering

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mmuneeb

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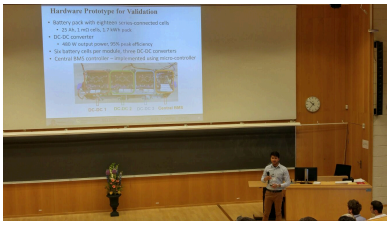

UPEL students, M. Muneeb Ur Rehman, Hongjie Wang, and Tarak Saha, presented their research papers at the 17th annual IEEE conference for Control and Modeling for Power Electronics (COMPEL 2016) sponsored by the IEEE Power Electronics Society (PELS). The conference was held in Trondheim, Norway this year and was well attended by engineers, researchers, students, and professionals from industry and academic world.

Muneeb, who was one of the recipients of student travel grant from COMPEL, presented his paper titled ‘Design and Control of an Integrated BMS/DC-DC System for Electric Vehicles’. The paper highlights research on a shared central control approach for electric vehicle battery systems using an integrated BMS-DC/DC architecture. The integrated BMS and DC/DC provides differential control of battery cells using a shared output DC bus and provides an opportunity for advanced battery management to achieve longer battery pack life and higher power limits. The paper provided details of control approach, system modeling, loop gain analysis, and design of feedback compensators for the integrated system.

Hongjie and Tarak’s paper, titled ‘Control of Series Connected Resonant Converter Modules in Constant Current DC Distribution Power Systems’, highlights research on control of the modules in dc current distribution systems. The dc current distribution is preferred in long distance applications such as ocean observatory systems, subsea oil and gas fields for its robustness against cable impedance and faults. The modules in dc current distribution systems are connected in series and distributed along the trunk cable with a constant current input. The control strategy proposed by the group results in stable operating of the system with no communications required among modules. The group’s research on stability analysis of a dc current distribution system is also presented in the paper.