

EECS 598-007 Special Topics Course: Advanced Topics in Electric Drives Fall 2016



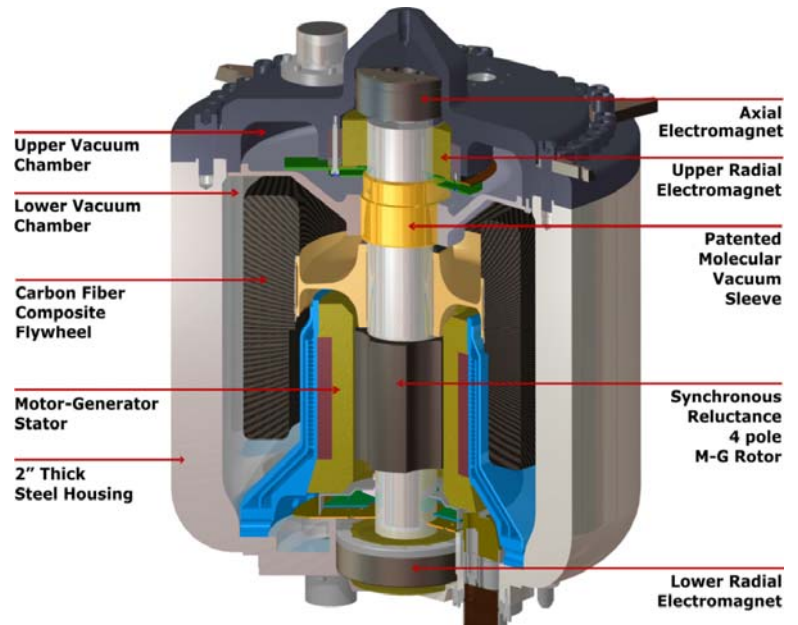
Tesla Roadster

This course will cover advanced topics in electric drives, such as:

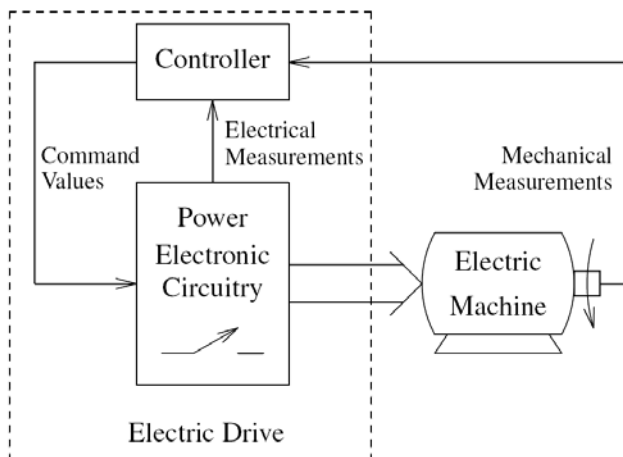
- Nonlinear modelling of electric machines, and subsequent controller design
- Discrete-time control implementations of field-oriented control techniques
- Real-time parameter estimation for online condition monitoring of electric machines

Students will gain hands-on experience with these techniques in the Power and Energy Instructional Laboratory. The course will have a final project where students will design and implement their own control algorithm.

In the struggle to address today's energy and environmental challenges, many potential solutions require electro-mechanical energy conversion. Power electronic converters, and their associated control algorithms, allow the precise control of the torque/speed/position of rotating machines in challenging applications, such as high-performance electric vehicles and high-speed flywheel energy storage systems.



Flywheel Energy Storage System



Instructor: Prof. Heath Hofmann
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Credits: 4 (includes lab session)

Lectures: MW 10:30am-12pm

Labs: TBD based upon student schedules