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## ***Thermomechanical stress analysis of electrical traction machines for electric vehicles***

- Goal:** Develop a simulation model/environment and use it to run simulations on the thermomechanical stress in the insulation systems of electrical traction machines. Use the result to suggest measurements to verify the simulated stresses.
- Background:** Electrical traction machines are typically exposed to high dynamic load and required to deliver high power density, which differ greatly from traditional industrial motors. Thermomechanical stress is developed when the machines are exposed to high temperature and temperature cycles, which affects the durability of the traction machine.
- Plan:** Identify a suitable FEM simulation software. Starting from an existing electrical machine, setup the simulation model(s). Perform sensitivity studies, such as whether temperature field distribution influences on mechanical stresses. Investigate the impact on durability of traction machines. Suggest measurements to verify the simulation results.
- Number of Students:** 2
- Start time:** August 2019
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