



Bachelor Thesis / Master Thesis

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Optimization of Field Weakening Control and Overmodulation Techniques for Dual Three-Phase PMSMs

Field weakening and overmodulation are both important techniques used in the control of electric machines, especially for the high speed operating range. The optimization of both control algorithms helps to extend the operating range and improve the efficiency of the DTP-PMSM. Therefore, this thesis aims to optimize the field weakening control and overmodulation techniques for dual three-phase (DTP) PMSM and to solve the torque oscillation problem when entering and existing overmodulation control. The control algorithms shall be implemented in the Model-in-the-Loop environment.

Your tasks:

- Literature research on field weakening and overmodulation techniques in DTP-PMSM control.
- Implementation and optimization of the proposed control algorithms in Matlab/Simulink, and integration in the Model-in-the-Loop simulation environment.
- Scientific evaluation of the proposed algorithms by comparing the results of FEM simulation.

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