Loss Model of an Induction Motor Drive

In order to develop efficient operation strategies, a loss model of the complete electrical drive is mandatory. The given application consists of an induction motor, which is fed by a three-phase voltage inverter. Based on a precise drive model (existing accurate inverter models, precise flux observers) the losses in the electrical domain should be modeled. The model design and evaluation will be the core task of the work.

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P_{\text{loss}} = P_{\text{in}} - P_{\text{out}}
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- **Tasks and Objectives**
  - Two alternatives are considered for the inverter loss model:
    - First model utilizes information of data sheets
    - Second model is based on an existing inverter model
  - Simulative preliminary investigations
  - Implementation on embedded controller hardware at the test bench and experimental verification
  - Literature study regarding existing loss models
  - Written documentation in the form of the final thesis

- **Requirements**
  - Successful participation in the lecture “Controlled Three-Phase Drives” or “Power Electronics”
  - Above average academic performance in (electrical) engineering, computer science or mathematics
  - Interest (ideally previous knowledge) in electrical drive technology

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