CFD models for cooling of hairpin windings

Postdoc: An Zhao
Period: 08-2020 to 08-2022

- Objectives
  - Implementation of parameterized hairpin-winding and end-space geometries in three dimensions
  - Simulation of different cooling methods for the end-space regime via CFD
  - Using the implemented models, determination of selected figure of merits including cooling capability, pump requirements, equivalent heat-transfer coefficients
  - (Analysis of the electromagnetic losses arising in the end-winding region)

- Funding and collaborations
  - Funding: STandUP for ENERGY
  - Industrial Partner: Scania

- Results so far
  - On going literature review on the state-of-the-art of thermal modeling and different cooling methods for electric machines