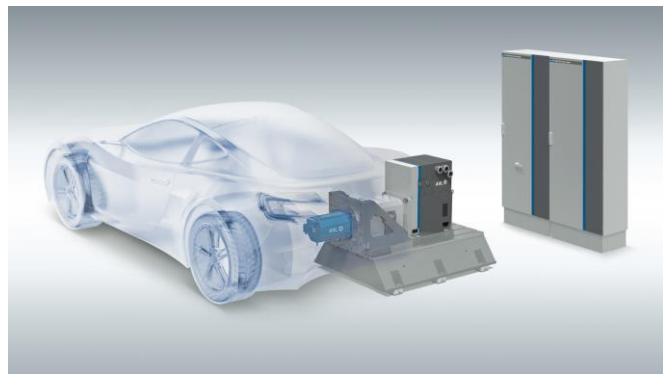


# Bachelor's/Master's Thesis

## Sheath Current Calculation for Power Cables in High-Speed e-Motor Testbeds

### Motivation

For inverter-fed high-speed e-motor testbeds, different power cable configurations (i.e., parallel connection of single-core or multi-core cables, in flat or trefoil arrangement) can be used to connect the inverter with the high-speed dynamometer. In case testbeds must be moveable, single-core cables are often selected over multi-core cables due to reduced stiffness of the former. However, depending on the phase-current amplitude, frequency, cable geometry and configuration, as well as grounding condition, significant sheath currents can occur causing cable overtemperature. The target is to develop a model to estimate the sheath currents for different cable configurations.



### Tasks

- Development of a model to calculate sheath voltages and currents for single core cables.
- Extension of the model to analyze different bonding conditions.
- Determination of the limits of using single-core cables for high-speed e-motor testbeds.

### Further Information

- In cooperation with AVL List GmbH.
- Start: asap.

### Contact

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