NEXTGEN Powertrain

PEM Chair of Production Engineering of E-Mobility Components | RWTH AACHEN UNIVERSITY

Head of the Institute: Prof. Dr.-Ing. Achim Kampker
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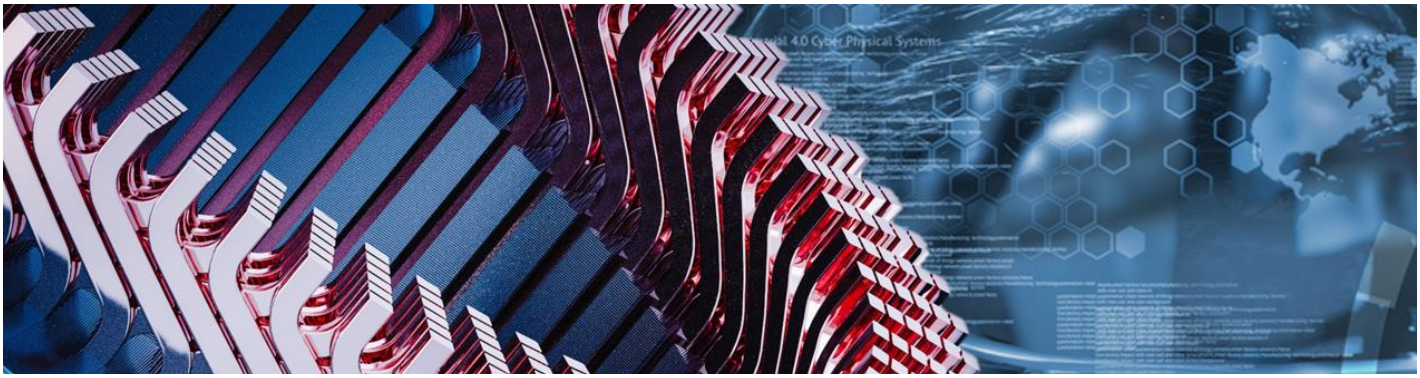
Bachelor-/Master Thesis

TCO Model development for innovative electric Heavy-duty vehicle concepts



Initial Situation:

Despite only amounting to around 9% of the total vehicles in circulation, medium and heavy-duty vehicles account for close to 40% of all transport greenhouse emissions, making alternative solutions for their powertrains an environmental necessity.

However, the transport industry is very price sensitive, so no alternative will be broadly accepted unless it provides a beneficial Total Cost of Ownership, and so far most manufacturers are focusing in developing battery electric vehicles, whose market potential is limited unless heavily supported by subsidies.

This is why it is important to know the potential TCO advantages other concepts like fuel cell and pantograph systems can offer, and understand the conditions that can optimize this potential.

Your task:

Your task is the development of a scenario-based analysis of the factors that influence the life costs of each powertrain variant. These scenarios should contemplate both technological and economic characteristics of the different alternatives.
Based on this research and scenario definition, a TCO calculation model extrapolated over the expected life of the vehicle is created. Finally, a roadmap for the TCO optimization of the analyzed powertrain variants based on your calculations summarizes the findings.

Your profile:

- Studies in mechanical engineering or industrial engineering (or similar)
- Motivation and commitment
- Good ability to communicate
- Very good English knowledge
- Ability to communicate & work in a team
- High level of commitment and initiative

Our offer:

- Comprehensive support
- Well-defined tasks
- Integration into research projects of the RWTH Aachen University
- Industrial contact
- Publication of your work in the course of the thesis possible

Are you interested?

Please send a current excerpt of grades, curriculum vitae and certificates to the e-mail address below.

Your contact at PEM:

José Guillermo Dorantes Gómez
Campus Boulevard 30,
D-52074 Aachen
j.dorantes@pem.rwth-aachen.de