

Volvo Group Trucks Technology

Powertrain Engineering

Thesis: 1D Modelling of H₂ Combustion

Position description:

Background

Heavy duty road transport is in a transition phase towards CO₂ neutrality. One promising carbon free energy carrier is hydrogen and an internal combustion engine is one technique for converting the chemical energy in hydrogen to mechanical work.

About us

Volvo Group Trucks Technology provides Volvo Group Trucks and Business Area's with state-of-the-art research, cutting-edge engineering, product planning and purchasing services, as well as aftermarket product support. The Powertrain Engineering Sweden organization has the full worldwide product platform responsibility for heavy duty engines and transmissions with a large organization of 750 colleagues in Gothenburg and Malmö.

Content

Initially a literature study should be conducted in order to gain information and experience from previous work. The next step is to study experimental data for H₂ combustion to identify key features and to decide on modelling strategy. The last step is to implement a model in the GT-Power engine simulation software and verify that the combustion process is captured in the simulations.

Suitable Background

Candidates should be in their final year of Master studies and preferably in the faculties of Mechanics, Applied Physics or computer science. An interest in aerodynamics and vehicles combined with good analytical skills and excellent understanding of physics is a good background. Basic knowledge of internal combustion engines is a plus. Relevant courses include but are not limited to: Combustion physics, Programming, Thermodynamics, Numerical analysis, Computational fluid dynamics.

For any further details please contact

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Thesis level: Master

Language: English

Starting date: September 2022

Number of students: 1

City/Town Göteborg

Last application date August 1, 2022

File your application on www.volvo.se