

Master thesis at Volvo Group Trucks technology

At Volvo Group Trucks Technology you will be a key contributor to the next generation of outstanding Trucks from Volvo. Together with other engineers around the world, you will create innovative human-centric transport technology that makes life less complicated and environment friendly.

The section Combustion System has the task to ensure the development of the next generation of engines and is responsible for developing Combustion Systems and Exhaust aftertreatment systems (EATS). We ensure that all legal (emissions and OBD) and customer attributes (Power, fuel Consumption & drivability) is met.

Title:

Sulfur poisoning and regeneration of CuZ for SCR - effect of SO_2/SO_3 ratio.

Background:

One of the main reasons behind performance deterioration of CuZ SCR catalyst is sulfur poisoning. Sulfur poisoning leads to a deactivation of the active copper sites and results in a decline in NO_x conversion activity over the SCR. The sulfur can however be removed by elevating the SCR temperature. This is referred to as sulphur regeneration.

The regeneration of the CuZ SCR allows the catalyst to re-gain the NO_x reduction efficiency. Choosing efficient regeneration procedures result in less fuel penalty and aging of all components.

Objective:

The objective of this work is to study the mechanism of sulfur poisoning by both SO₂ and SO₃, and regeneration of various Cu-Zeolite systems (SAPO-13, SSZ-13, ZSM-5, β etc.). The findings of the study will help to compare performance of different systems when exposed to sulfur and propose more efficient regeneration procedures.

Starting time: Sept. 2017

Duration: 5 months

The position is available for 1-2 students.

Requirement:

Background in chemistry, chemical engineering or physics

The project includes both theoretical and practical experimental work.

Contact info:

louise.olsson@chalmers.se

sheedeh.fouladvand@volvo.com

fredrik.gunnarsson2@volvo.com