

Master Thesis

Nanoscale Nitrogen Diffusion in Hard Coatings on Steel

at the Christian Doppler Laboratory for Nanoscale Phase Transformations, ZONA
and the Robert Bosch Engineering Center Linz.

CrN hard coatings are an essential part of modern common rail fuel injectors.
Challenges arise in connecting these hard coatings to the valve basic material steel.

During this Master thesis, the interface area between coating and base material will be investigated by high-resolution electron microscopy in order to better understand the interaction of the different materials. The diffusion of the present light element nitrogen and the formation of undesirable nitrides should be understood.

Tasks: Preparing and investigation of annealing series of various hard coating systems in order to understand phase formation and nitride precipitation at the interface area.

Are you interested? Contact: heiko.groiss@jku.at or bernhard.mandl@at.bosch.com

Master thesis duration: 6-9 month Start: Anytime

