

## Kirsten Inga Lieke - DTU Orbit (07/08/2016)

Kirsten Inga Lieke

### Organisations

#### Postdoc, Center for Electron Nanoscopy

17/12/2012 → 03/09/2013 Former

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19/08/2013 → 31/10/2013 Former

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### Publications:

#### Micro- and Nanostructural Characteristics of Particles Before and After an Exhaust Gas Recirculation System Scrubber.

This work provides insight into the morphology and mixing state of submicron particles in diesel exhaust from a ship engine with an exhaust gas recirculation scrubber. Particles from this low-speed ship engine on test bed were collected using a microinertial impactor with transmission electron microscopy (TEM) grids on two stages. Micro- and nanostructural characteristics of single particles were studied by TEM. Image analysis was carried out on overview and high-resolution images, revealing influence of the exhaust gas treatment (scrubber) on the particle morphology and mixing state. Soot agglomerates were found to be collapsed after scrubber, reflected by their change in fractal dimension (D<sub>f</sub>) from 1.88 to 2.13. Soot was predominantly found internally mixed with other components, with a higher degree of internal mixing observed after scrubber. Soot nanostructural characteristics on the near atomic scale such as layer distance, lamella length, and tortuosity were not observed to be influenced by the scrubber. We also found that particles in the size range between 30 and 50 nm, which were abundant in the exhaust before and after scrubber, were not graphitic soot. Furthermore, we found indications that these particles are composed of other crystalline material (salts).

#### General information

State: Published

Organisations: Center for Electron Nanoscopy, FORCE Technology, MAN Diesel & Turbo SE, University of Copenhagen

Authors: Lieke, K. I. (Intern), Rosenørn, T. (Ekstern), Pedersen, J. (Ekstern), Larsson, D. (Ekstern), Kling, J. (Intern), Fuglsang, K. (Ekstern), Bilde, M. (Ekstern)

Pages: 1038-1046

Publication date: 2013

Main Research Area: Technical/natural sciences

#### Publication information

Journal: Aerosol Science and Technology

Volume: 47

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ISSN (Print): 0278-6826

Ratings:

BFI (2015): BFI-level 2

Scopus rating (2015): 1.922 0.942

BFI (2014): BFI-level 2

Scopus rating (2014): 1.504 1.17

BFI (2013): BFI-level 2

Scopus rating (2013): 1.644 1.582

ISI indexed (2013): ISI indexed yes

BFI (2012): BFI-level 2

Scopus rating (2012): 1.58 1.169

ISI indexed (2012): ISI indexed yes

BFI (2011): BFI-level 2

Scopus rating (2011): 1.294 1.017

ISI indexed (2011): ISI indexed yes

BFI (2010): BFI-level 2

Scopus rating (2010): 1.467 0.974

BFI (2009): BFI-level 1  
Scopus rating (2009): 1.967 1.113  
BFI (2008): BFI-level 2  
Scopus rating (2008): 2.248 1.329  
Scopus rating (2007): 2.345 1.326  
Scopus rating (2006): 1.684 1.179  
Scopus rating (2005): 1.319 0.946  
Scopus rating (2004): 1.843 1.439  
Scopus rating (2003): 2.002 1.264  
Scopus rating (2002): 2.004 1.31  
Scopus rating (2001): 1.195 1.358  
Scopus rating (2000): 1.382 1.475  
Scopus rating (1999): 1.38 0.945  
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Source-ID: n::oai:DTIC-ART:ebsco/390668588::31404  
Publication: Research - peer-review › Journal article – Annual report year: 2013

### **Projects:**

#### **Establishing sampling- and analytical procedures for the quantification of nanoparticles in aerosols and condensing conditions**

Department of Micro- and Nanotechnology

Period: 15/05/2016 → 14/05/2019

Number of participants: 4

Phd Student:

Bluhme, Anders Brostrøm (Intern)

Supervisor:

Koponen, Ismo Kalevi (Ekstern)

Lieke, Kirsten Inga (Intern)

Main Supervisor:

Mølhave, Kristian (Intern)

#### **Financing sources**

Source: Internal funding (public)

Name of research programme: Samfinansieret - Andet

Project: PhD