

COLLOQUIUM

Group: Engineering Fluid Dynamics

As part of her MSc thesis assignment

Yu Han

will give a presentation, entitled:

First Steps towards Integration of eNose and Spirometry

Date: Monday August 19, 2013

Time: 14:00

Room: N.109

Summary:

With each breath we exhale hundreds of different types of volatile organic compounds (VOCs). The origin of exhaled VOCs may vary, as they result from systemic as well as local metabolic, inflammatory and oxidative activity. Based on these VOCs each breath is characterized by its specific 'breath print'.

Such a breath print can be produced by the VOC's detected or smelled by an electronic nose (eNose). Essentially an eNose consists of a head space sampling part, a sensor-array, and a pattern recognition module, to generate a signal pattern that is used for characterizing odors.

Studies conducted so far in the research field of respiratory diseases suggest that eNose technology has great potential to develop into a new medical (diagnostic) tool. Asthmatic persons can be discriminated from healthy control persons with cross-validated accuracies between 80-100%.

eNose technology could develop into a screening device, but also into a monitoring tool to prevent patients from exacerbations. In this research, an integration prototype of eNose with regular lung function tests, i.e. spirometry has been build. A cross-sectional clinical trial with 10 asthma patients and 10 healthy volunteers has been conducted to test the integration setup.

Assessment committee:

Prof.dr.ir. H.W.M. Hoeijmakers (chairman)
Dr.ir. F.H.C. de Jongh (supervisor)
Dr.ir. R. Hagmeijer (internal)
Dr.ir. E.P. Houwman (external)
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d.d. _____