Detection of small organics in water
the MUSE project

Frøhling, Kasper Bayer

Publication date:
2015

Document Version
Peer reviewed version

Citation (APA):

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.
Detection of small organics in water
- the MUSE project

Kasper Bayer Frøhling
PhD student
DTU Nanotech
Motivation - water quality

MUSE Multi sensor DVD platform

17.4 MDKK

The Danish Council for Strategic Research

GRUNDFOS Unisensor ViroGates
The DVD/Blu-ray setup

Platform

Sampling

Sensing
Raman Spectroscopy
Hotspot explanation
Surface-Enhanced Raman Spectroscopy (SERS)

Nanoparticles
Our SERS Substrate
Our SERS Substrate
SERS Detection
SERS Detection

Inside droplet

Outside droplet

1 μm
Capturing the Target

Ag/Au SERS  DNA aptamer  17β-estradiol

Raman shift

Intensity

200 nm
Magnetic Nanoparticles

Brownian relaxation = physical rotation of the particle
Magnetic Nanoparticles
Magnetic Nanoparticles
Work in progress