

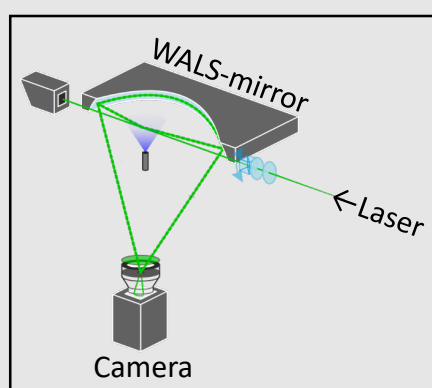
**Bachelor thesis/  
Project thesis/  
Master thesis**

## **Investigation of hetero-particles produced by an bipolar electro-spray via Wide-angle light scattering and UV-Vis absorption spectroscopy**

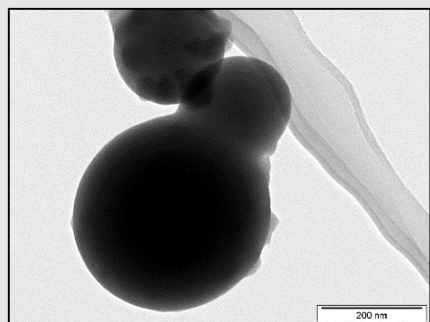
Supervisor: Peter Lang

Start: As of now

Topics: Optical metrology, Wide-angle light scattering, UV-Vis absorption spectroscopy



**WALS measurement set up**



**Image of a nanoparticle aggregate taken by a transmission electron microscope**

The central topic of the working group "Particle Measurement" at the Institute of Engineering Thermodynamics (LTT) is the investigation/development of suitable methods for the characterisation of nanoparticles

A bipolar electro-spray offers the possibility of combining single nanoparticles from different materials, creating so-called hetero-particles. These offer a wide range of potential applications, for example in energy supply or for improving sensors.

Of particular interest for these applications is the relationship between the characteristics of the contact and the functional properties.

In this work, so-called wide-angle light scattering is to be used to determine the shape and size of hetero-particles produced by a bipolar electro-spray, which is made possible by analysing the shape of elastically scattered light. UV-Vis absorption spectroscopy will be used in conjunction to determine the functional properties. This provides insights into the optical properties of the particles, allowing conclusions to be drawn about the influence of the hetero-contact.

Students should have an interest in optical metrology and be able to work independently. Basic knowledge in the above-mentioned subject area is useful, but not essential.

**Contact:**

M.Sc. Peter Lang

Room: B.1.11

Tel.: 09131 85 29784

email: [pet.lang@fau.de](mailto:pet.lang@fau.de)