

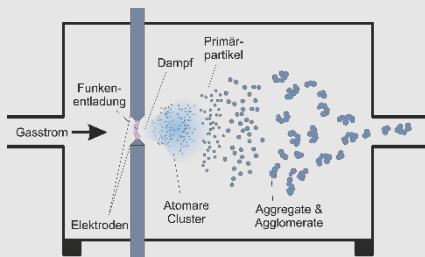
Master thesis

Investigation of nanoparticles from a spark-discharge-generator using optical and classifying techniques

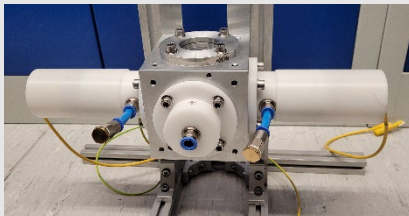
Supervisor: Franz Huber

Starting Time: immediately

Topics: Particle Synthesis, Particle Diagnostics, Aerosol Technology



Schematic set-up of spark generator



Spark Discharge Generator

The central topic of the working group "Particle Measurement Technology" of the Institute of Engineering Thermodynamics is the investigation of nanoparticle formation with laser-optical measurement methods to influence it specifically by suitable selection of the boundary conditions.

The spark discharge between two electrodes in a spark-discharge-generator allow to produce fine gas-borne particles in the nanometer range, which can be used in a wide range of applications, e.g. in the field of catalysis or hydrogen storage. By choosing the electrode material, the applied currents and electrode distances, nanoaerosols of different materials (e.g., graphite, metallic) and with variable particle size can be produced.

In this work, particles of different materials shall be produced with a spark discharge generator at different operating parameters and shall be characterized with optical and classifying methods. In particular, wide-angle light scattering (particle size and shape), laser-induced breakdown spectroscopy (material composition), and a scanning mobility particle sizer (mobility diameter) will be used for this purpose.

Students should have an interest in optical metrology and particle science and should be able to work independently. Basic knowledge in the above mentioned subject areas is advantageous, but not mandatory.

Contact:

Dr.-Ing. Franz Huber

Office: B.2.05

Tel.: 09131 85 29771

email: Franz.Huber@fau.de