UNIVERSITY of STUTTGART
INSTITUTE OF SPACE SYSTEMS

Pfaffenwaldring
29 · 70569 Stuttgart ·Germany · Tel. +49 (0) 711 685-62375 · www.irs.uni-stuttgart.de

Master Thesis Work

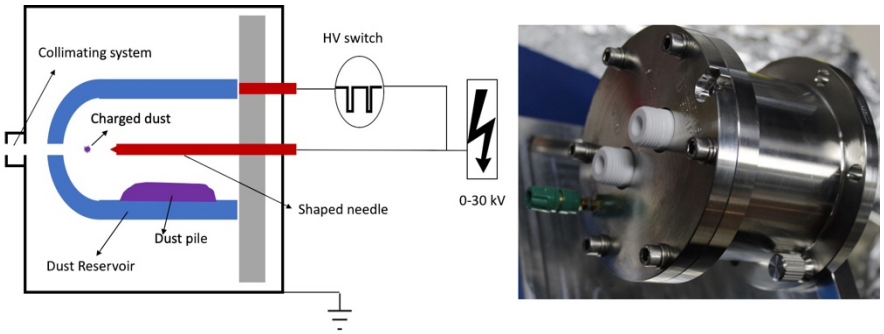
of Choose title Name, Surname

German thesis title

The influence of electrode geometry on the dust particles charged within the dust source

Motivation:

Electrostatic dust accelerators operated at University of Stuttgart are powerful tools, which can fire micron-sized particle with speeds from several m/s to 100 km/s. The dust source is one of the key components in a dust accelerator facility. Dust particles obtain their surface charges and preliminary speeds from the dust source. The charging of micron-sized dust particles is a major challenge in the development of a dust source. Particles may be charged by UV irradiation, electron and ion beams, or by contact with a charged surface. The latter method, which results in adequate particle charge to mass ratio (q/m), was selected to develop a new Dust source.



The ultimate goal of this study is to analyze how the geometry of the charging electrode (needle) influences the parameters of accelerated particles, including charge, speed, size of individual dust, etc.

Task description of the Master thesis work:

- Literature review
- Mechanical design of the electrode
- Electric field simulation with software (such as COULOMB)
- Experimental test
- Documentation

Supervisor: Names internal supervisors

Starting date: Click for date

Submission until: Click for date

Contact: li@irs.uni-stuttgart.de /071168569653

Acknowledgement of receipt:
I hereby confirm that I read and understood the task of the master thesis, the juridical regulations as well as the study- and exam regulations.

_____
Date
app. Prof. Dr.-Ing. Ralf Srama
(Responsible Professor)

_____
Date
Signature of the student