



Universität Stuttgart

Institut für Feuerungs- und Kraftwerkstechnik  
Prof. Dr. techn. G. Scheffknecht

Ausschreibung

Masters  
Thesis  
2023

## Validation of Laser based thickness and reflectivity measurement of deposited ashes.

### Background

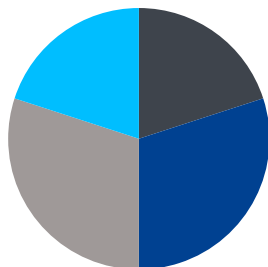
A novel and nonintrusive **laser-based** device which measures ash deposition layer formation in solid fuel combustion is deployed at the pilot scale plant of IFK. A real time measurement of dual properties (thickness and reflectivity) of deposited ash on both ceramic and corrosion probes can be simultaneously determined.

### Process

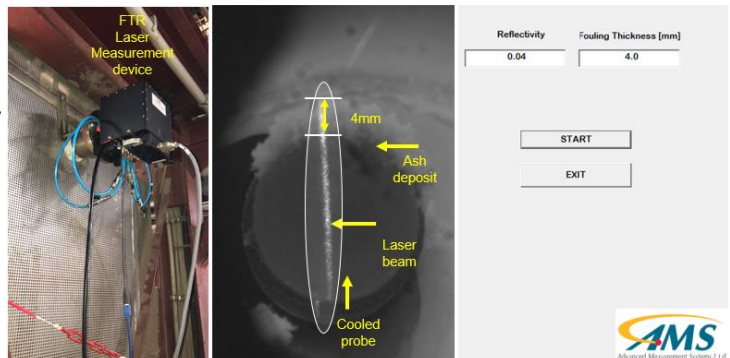
Several solid fuels (e.g Coal, Biomass, Sewage Sludge and Solid Recovered Fuels) will be either mono- or co-fired at the Drop Tube Furnace (BTS). A parallel measurement of deposit layer thickness and reflectivity will be conducted. Efforts will be made to link deposition rate with deposition height determination using a novel laser based and a deposition rated device.

### Goals and required skills

1. Literature review (Laser measurement)
2. Development of validation methodology
3. Carrying out several test campaigns
4. Results presentation



■ Literature ■ Theory  
■ Experimentation ■ Practical work



### Requirement

- Independent and self reliant
- Methodology oriented work ethics
- Interest for experimental work
- Readiness to work longer hours
- Interest in handling solid fuels
- Interest to explore and learn new software

**Starting: March 2023!**

**HIWI** position is a possibility during your thesis work and German Speaking students are encouraged to apply.

**Supervisors and Contacts:**

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