



TECHNISCHE
UNIVERSITÄT
DARMSTADT

Master-Thesis / Bachelor-Thesis / ADP

Development of a Reactor for the Analysis of Polymer-Pyrolysis Products **Entwicklung eines Reaktors zur Untersuchung von Polymer-Pyrolyseprodukten**

Motivation:

The institute for Reactive Flows and Diagnostics (RSM) works on the topic of modern combustion research. Laser diagnostics enable the investigation of the complex combustion-processes for gas-, liquid- and solid-fuel-combustion. A new Topic at the Institute is the application of laser diagnostics for the investigation of the effect of flame retardants used in polymers.

Flame retardants in polymers are released during combustion together with the other products of the pyrolysis and take effect through diverse mechanisms at the surface of the polymer or in the burning gas-phase. In this way flame retardants can reduce the flammability of materials and inhibit the spread of fires and save lives.

For easier investigation, the release of the pyrolysis products is to be separated from the influenced flame to be investigated. For this purpose, a reactor is to be developed in which polymers can be pyrolyzed in order to collect the released gases and introduce them into a sample volume in a controlled manner.

The topic is suitable for an ADP, Bachelor- or Master-Thesis and the tasks will be adapted accordingly.

Tasks:

- Literature research & familiarization with the topic of polymer pyrolysis
- Concept development for the pyrolysis reactor
- Construction & Testing of simple prototypes
- Design & construction of the final reactor concept

Prerequisites:

- Working independently
- CAD-knowledge is helpful
- Creativity for concept development is helpful

Interested? Then get in touch with me!

Begin: By agreement / 1st April 2023

Reactive Flows and
Diagnostics (RSM)

Reaktive Strömungen und
Messtechnik



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