

**Final thesis****Adaptation and investigation of the fluidization characteristics of a fluidized bed for Oxyfuel combustion**

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**Contents:**

Biogenic CO<sub>2</sub> is required as a carbon carrier in Power-to-X applications and also for CO<sub>2</sub> fertilization of greenhouses. In order to replace the predominantly "fossil" CO<sub>2</sub>, the "OxyGreenCO<sub>2</sub>" research project is investigating the provision of "green" CO<sub>2</sub> from biogenic solid fuels using Oxyfuel combustion. The CO<sub>2</sub> can be separated from the flue gas using a partial condenser.

For this reason, the Chair of Energy Process Engineering is adapting a 100 kW fluidized bed to Oxyfuel operation and planning a process chain consisting of Oxyfuel combustion and subsequent partial condensation. The aim of the thesis is the recommissioning and modification of an existing 100 kW fluidized bed to Oxyfuel operation. The fluidization behaviour of the fluidized bed with steam and steam/oxygen mixtures is to be calculated and then investigated experimentally in order to identify possible operating points for Oxyfuel combustion.

**Tasks:**

- Literature review on Oxyfuel combustion of biomass and steam as a fluidization agent in fluidized beds
- Recommissioning of a 100 kW fluidized bed
- Calculation of fluidization characteristics
- Experimental investigation of fluidization characteristics
- Written documentation of the thesis and clear presentation of the results

**Requirements:**

- Structured and independent working style
- Interest in practical work on the experimental plant
- Working language: German or English

**Start:** ongoing**Contact:**

Hannah Cortnum, M.Sc.

**Phone:** +49 911 5302 99175**E-Mail:** hannah.cortnum@fau.de