Master Thesis

Modeling of the reaction of aluminum with water to produce hydrogen

The generation of green hydrogen is a crucial part of the energy transition. A promising approach to producing green hydrogen is the combustion of recycled aluminum particles. In contrast to traditional electrochemical approaches, the combustion of aluminum particles additionally provides high-temperature process heat and valuable aluminum oxide nanoparticles, which will be utilized in electronics, the aerospace industry, etc. In this project, numerical models for a novel aluminum particle reactor will be developed to support the development and scale-up of the reactor.

Tasks:
- Development of detailed models for the reactions of aluminum particles
- Analyzing the obtained results and validating them with experiments

Our Offer:
- Close supervision with integration into the research group
- A relevant, state-of-the-art research topic that can be adjusted to your interests

Requirements:
- Enthusiasm about programming and numerical modeling
- Interest in fluid dynamics and thermodynamics

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