

# SPP 2419 HyCAM - IGNITER

Enabling Industries Through Design of Fuel-flexible Burners for Emission Reduction



## Motivation and Relevance

- Transition to sustainable energy systems requires fuel-flexible industrial burners (Hydrogen and Methane)
- Simulation based design requires manufacturing of complex geometries → additive manufacturing

## Approach

- Simulation-based design framework for optimizing industrial burners
- Iterative approach where a parametric model and CFD simulations are combined into an optimization loop
- Experimental validation of simulation and design

## Results

- Development of design framework for industrial burners
- Design and manufacturing of fuel-flexible burner
- Manufacturing parameters for complex thin-walled geometries for high temperature applications with reduced postprocessing

Funded by the Deutsche Forschungsgemeinschaft (DFG) - project number 523874889.

## Research Area

- Hydrogen
- Adjoint optimization
- Design for AM

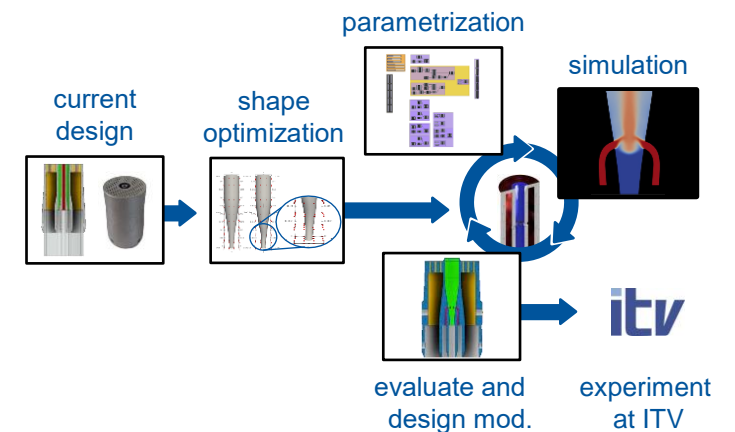
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