KIT
Karlsruher Institut für Technologie

Bachelor/Master Thesis

IHM

Development of user-interface for control of Pulsed-Plasma Experiment and data acquisition

Motivation

In the framework of the Helmholtz Program *Materials and Technologies for the Energy Transition* in the topic *Chemical Energy Carriers* we investigate microwave sustained plasmas for synthesizing fuels and commodities. In our group, we study one of most urgent pathways: plasma-assisted conversion of carbon dioxide (CO_2) into syngas ($CO+H_2$). The experimental environment includes 1) pulsed microwave generator (to power the plasma), 2) mass-flow controllers, 3) optical emission spectroscopy (OES), 4) microwave power meter, 5) FT-IR spectrometer, 6) gas analyzer. Some diagnostics are synchronized with the microwave generator.

Task description

To automate the control of the experiment when different parameters are varied, a graphical user interface (GUI) has to be developed enabling the control of both experimental settings for plasma reactor, and acquisition of data from spectrometers, power meter and gas analyzer. <u>For master thesis</u>, it is also foreseen the investigation of pulsed CO_2 plasma by means of parameter studies.

Requirements

Curiosity to work on experimental projects
Knowledge (experience as a plus) in Matlab/LabView programming

CO₂ plasma
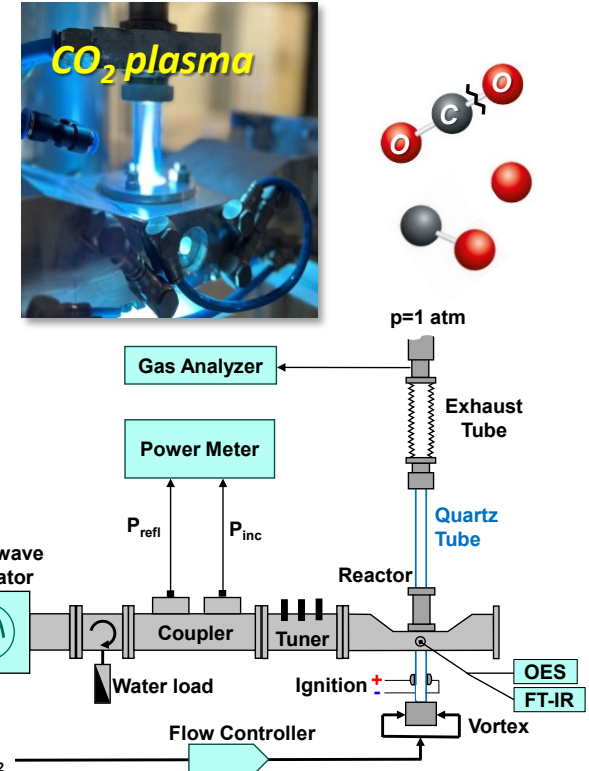
Ansprechpartner

Dr. Sergey Soldatov
Gebäude 0421, Zimmer 209b
E-Mail: Sergey.Soldatov@kit.edu
Telefon: 0721-608 24330

M. Sc. Lucas Silberer
Gebäude 0421, Zimmer 209b
E-Mail: Lucas.Silberer@kit.edu
Telefon: 0721-608 26236