

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 ($\text{CO} + \text{H}_2$). 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.

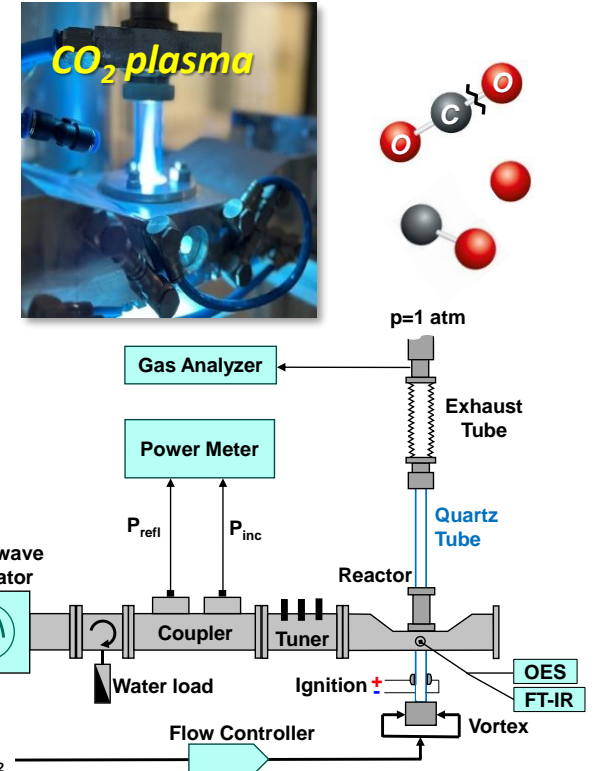
Task description

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. For master thesis, 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



Ansprechpartner

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