INSTITUT FÜR UMWELTPHYSIK

UNIVERSITÄT HEIDELBERG ZUKUNFT SEIT 1386

Master Thesis

Development of a Fabry-Pérot interferometer CO_2 camera

Background

The atmosphere research group at IUP Heidelberg develops instruments to study the composition of the atmosphere. CO_2 is the most important anthropogenic greenhouse gas, and quantifying the emissions of various sources is of special interest. Among other instruments, the research group started developing a CO_2 camera to visualize and quantify CO_2 emissions. The camera is based on a Fabry-Pérot interferometer (FPI) with a transmission pattern correlating with the spectral absorption structure of CO_2.

Work Content

So far, a prototype instrument has been developed which successfully detects CO_2 in lab measurements. The proposed master's thesis will continue this work. The prototype requires further development and automatization to be ready for field deployment. For this, you will perform instrument simulations and work on the prototype in the laboratory. Depending on the progress you may also perform field measurements at a nearby coal-fired power plant and work on the data analysis.

Prerequisites

Interest in performing instrument simulations and working in the lab on an optical setup is necessary. Knowledge of lectures in environmental physics, ideally atmospheric physics and radiative transfer is preferable.

Contact

For any questions or if you are interested in working on this exciting project, please contact us:

Prof. Andre Butz

INF 229, office 424, (06221) 54 63 10

andre.butz@uni-heidelberg.de

Moritz Sindram (PhD Student)

msindram@iup.uni-heidelberg.de

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