Karlsruher Institut für Technologie



Institute for Automation and Applied Informatics (IAI)

Student Assistant Position (HiWi)

Construction of an OpenRAMAN Spectrometer

for the Detection of Microplastics

As part of this student assistant position, a Raman spectrometer based on the open-source OpenRAMAN project will be assembled and put into operation for the detection of microplastics. Raman spectroscopy identifies plastics based on their spectral fingerprint. The position involves the optical and mechanical assembly, adjustment, and calibration of the instrument, as well as initial measurements on reference polymers and microplastic samples. It offers the opportunity to gain hands-on experience in developing an innovative measurement method for a pressing environmental problem.

Supervision:

Leonard Saur, M.Sc.

Prof. Dr. Christian Pylatiuk

Contact:

Leonard Saur, M.Sc.

leonard.saur@kit.edu

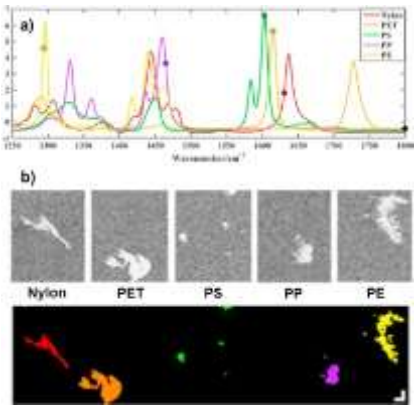


Figure: Raman spectra of Nylon, PET, PS, PE and PP [1]



Figure: OpenRAMAN spectrometer [2]

Tasks

Familiarization with Raman spectroscopy and the OpenRAMAN project

Assembly and adjustment of the spectrometer (optics and mechanics)

Calibration and commissioning using the associated software

Initial measurements on reference polymers and microplastic samples

[1] Adapted from (Zada et al., 2018)

[2] Photo: GitHub samyk/openraman; Project: open-raman.org (CERN-OHL-W v2)

Education, Experience, and Skills

High level of motivation and ability to work independently

Interest in optics, spectroscopy, and measurement technology

Manual dexterity; experience with Python is a plus

Institute for Automation and Applied Informatics (IAI)
Karlsruhe Institute of Technology
Campus North
Hermann-von-Helmholtz-Platz 1
76344 Eggenstein-Leopoldshafen