Internship Project (part-time):
Simulation of an Echelle spectrometer with Opticstudio (Zemax) (Duration: 6 months, Start: 1\textsuperscript{st} March 2019)

Description:
Performing laser-induced breakdown spectroscopy (LIBS) requires a high-throughput spectrometer with high resolving power in a wide spectral range. To do so, the Echelle design which offers high-resolution separation of broadband wavelength in different diffraction lines looks promising. In our project, we are developing a fiber-fed Echelle spectrometer for miniaturized LIBS setup for tissue characterization application. The mentioned setup will provide valuable information for the surgeon to stop the laser beam after cutting the desired tissue. This setup is also meant to be used as feedback in laser surgeries in order to distinguish healthy tissues from cancerous one, as well as to detect laser-induced thermal damages to the tissues (e.g., dehydration, and carbonization). In this internship project, the intern is expected to simulate the design of the Echelle spectrometer in Opticstudio software (formerly known as Zemax). This simulation will help to improve the optical design of the spectrometer to reduce the optical aberration of the system.

Qualifications:
- Excellent Bachelor’s grades.
- Experience in optical software simulators (e.g., Zemax/ COMSOL).
- Experience in spectroscopic system design is a plus (not mandatory).
- Applicants are expected to have excellent language skills in English.

Tasks:
- Basic research
- Software programming

We offer:
- Opportunity to work in a highly innovative flagship project with up to 30 researchers.
- You will learn how to build a spectrometer.

Supervision:
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