

PhD position: Developing Far Infrared spectroscopy for studies on the respiratory complex I: on the role of the internal hydrogen bonding network during catalytic cycle

Summary

In this study we will develop a reaction induced far infrared spectroscopic approach using the far infrared or THz range, below 300 cm^{-1} to probe protein dynamics. This spectral range includes information on the collective motions of a molecule, on the tertiary structure, and on structural water.

The enzyme studied is the respiratory complex I. This membrane protein plays a central role in metabolism. There is only little knowledge available on the catalytic mechanism on molecular level, however there are indications that at least part of the redox reaction and proton pumping is accompanied by large conformational changes.

The student will be working in the bioelectrochemistry and infrared spectroscopy group lab of Prof. P. Hellwig at the University of Strasbourg. The project involves a collaboration with the group of Prof. T. Friedrich at the University of Freiburg specialized in the protein chemistry and genetics of bacterial complex I.

Profile: Master/Diploma in Physics, biophysics or physical chemistry; excellent grades (13/20 in the French system); English required, French and German helpful

Contact

Please send your CV with all grades, two references and a letter of motivation until the 7th of February to:

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