PhD position at the University of Strasbourg in France on the study of the reaction intermediates in terminal oxidases by means of electrochemical and vibrational spectroscopies

The Bioelectrochemistry and Vibrational Spectroscopy Group in the Complex Chemistry Matter Institute (UMR 7140) of the University of Strasbourg in France seek candidates for PhD positions, to work on an exciting, multi-disciplinary project. The group has expertise in a variety of research areas including infrared / THz, Raman spectroscopy and electrochemistry applied on proteins.

We invite applications from highly motivated individuals that have excellent communication skills and sufficient command of English. This project is a part of an ambitious research program that aims on the development of plasmonic nanoreactors enabling excitation at specific wavelengths in infrared and THz for the study of the reactivity of complex molecular structures. By combining infrared spectroscopies and solid-state plasmonic nanostructures with excitation at wavelengths specific for the signature of protonated acidic residues, protein backbone and the overall hydrogen bonding network in the protein, we aim at monitoring the reactions of the protein during catalysis. The individual nanoreactors will be coupled to electrochemistry to mimic the natural potential of the membrane allowing performing a label free detection of the catalytic reaction and the conformational control within crucial membrane proteins. In parallel, nanodiscs including membrane proteins, will be produced and the intermediate states of the catalytic reaction studied.

We provide a unique opportunity for the successful candidate to engage in inter-disciplinary research using a variety of cutting-edge techniques at the interface between physical chemistry and biophysics. A background in physical chemistry with a strong interest in spectroscopy, nanotechnologies and plasmonics is desirable. Alternatively, a strong bioelectrochemistry background is also suitable. Candidates with a master's degree in physical chemistry, biophysics or an equivalent field are welcome.

The group is located on the central campus of the University of Strasbourg. https://complex-matter.unistra.fr/equipes-de-recherche/laboratoire-de-bioeletrochimie-et-spectroscopie/

Please send your application, including a CV, 2 references, the final marks of your master to hellwig@unistra.fr until the 15.7.