

***SEIRA, SNIM, QCL, UFTIR:
Introducing New Tools for Vibrational Biospectroscopy***

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New experimental methodologies will be presented that provide insight into the structure and function of membrane proteins and their associated changes:

- *in-vitro* translation and folding experiments on the membrane protein bacteriorhodopsin has been monitored by applying surface-enhanced IR absorption spectroscopy (SEIRAS).
- Vibrational spectroscopy of individual proteins and biological membranes has been performed by scanning near-field infrared microscopy (SNIM) at a spatial resolution of 30 nm.
- Time-resolved IR spectroscopic experiments on the basis of tunable quantum cascade lasers (QCL) and ultrafast scanning interferometers (UFTIR) will be presented to record the kinetics of conformational changes in membrane proteins.