

# Seminar Speaker Series

in the framework of Interreg V-A project CAPSID

presents

## Dr. Frank Vollmer

Living Systems Institute, University of Exeter, UK

# Light waves meet molecular machines:

## Probing single molecules on $\mu$ -interferometers

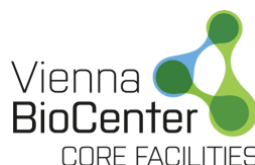
**24. 06. 2021 at 14:00**

Online virtual talk via Zoom

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## Prof Frank Vollmer

Professor of Biophysics

*Living Systems Institute, University of Exeter, UK*

<https://www.vollmerlab.com/publications>

## AREAS OF EXPERTISE

Prof. Vollmer is pursuing a multi-disciplinary research initiative in Molecular, Nano- and Quantum Sensors and Systems that is unique in the UK (and the world) and that brings together the research streams of nanophotonics, nanoplasmonics, quantum optics, molecular mechanics (molecular machines, synthetic bio) and in the future, also molecular electronics and neuroscience. This new pan-disciplinary area, he believe, will be a very large and upcoming research playground at the cross-roads of cutting edge experimental and theoretical sciences; there will be applications in health, nanotechnology, metrology, environment, security, and astronomy; it touches on core subjects in physics, quantum optics, optics, biophysics, engineering, molecular mechanics and biochemistry.

## SEMINAR ANNOTATION

Within the context of established structural biology techniques, I will review a new class of highly sensitive optical m-interferometers which characterise protein dynamics on previously difficult to access timescales. These sensors have enabled the detection of single ions, enzyme activity and various ligand reactions/interactions. They can visualise motions throughout a protein without the use of fluorescence labels and complement established structural biology techniques such as smFRET and cryo-EM.

## REFERENCES

[1] [Review](#): Whispering-gallery mode (WGM) sensors: review of established and WGM-based techniques to study protein conformational dynamics

[2] [Book](#): Optical Whispering Gallery Modes for Biosensing.

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