



L4H Seminar YVES REZUS 'Nonlinear infrared spectroscopy: from biomolecules to nanoantenna'

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Biomolecular Photonics, FOM Institute AMOLF, THE NET

May 07, 2014

Wednesday, May 7, 2014, 10:30. Seminar Room

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In this talk I will give an overview of the research in the newly started Biomolecular Photonics group at AMOLF. Our workhorse is two-dimensional infrared spectroscopy (2DIR), a novel experimental technique that allows one to study the structure and dynamics of molecules on a picosecond timescale. In the first part of the talk I will discuss how we use this technique to study the conformational motion of elastin-like peptides. These disordered peptides form the protein domain that gives rise to the elasticity of elastin (which is the protein responsible for the extensibility of lungs, skin and arteries). These experiments are part of our overarching

effort to understand the molecular basis of protein elasticity.

In the second part of the talk I will focus on the group's second line of research. Here we use nanophotonic techniques to increase the sensitivity of 2DIR spectroscopy with the ultimate goal to reach monolayer sensitivity. I will present our first results in this direction, which demonstrate the possibility to enhance the nonlinear spectroscopic signals by at least four orders of magnitude.

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Hosted by Prof. Niek Van Hulst