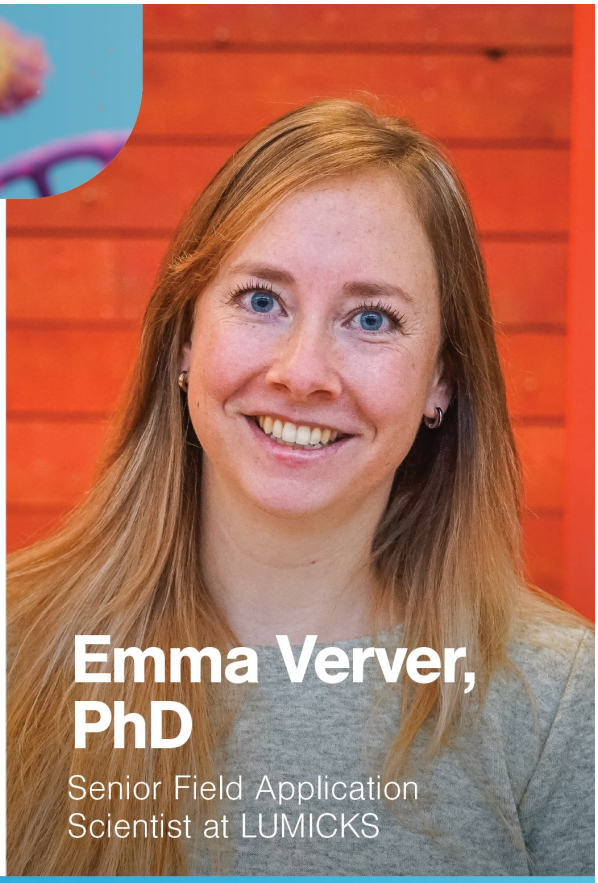
Optical Tweezers and Single Molecules:

How to control, manipulate and visualize biomolecular complexes in real-time



Seminar

March 14 – 09:30-10:30

University of Wrocław, Faculty of Biotechnology

Joliot-Curie 14a / Seminar room 1.03

SPEKTROMETRIA

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Optical Tweezers and Single Molecules:

How to control, manipulate and visualize biomolecular complexes in real-time

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Imagine if you could directly see the location and dynamics of individual proteins binding to a single piece of DNA/RNA in real time. What if you could hold a single protein and manipulate its structure to interrogate its conformational landscape? What if you could assemble your biological complex step by step and expose it to different buffer conditions to test your experimental hypotheses?

With the LUMICKS C-Trap, the world's first dynamic single-molecule microscope combining high-resolution optical tweezers, fluorescence microscopy, and advanced microfluidics in a truly integrated system, you can do all of this! During this seminar, we will illustrate how the dynamic single-molecule approach can shed light on a multitude of biological processes: from the mechanism of action of DNA-binding enzymes to protein folding and conformational changes, from membrane remodelling to cellular mechanics.

These experiments show that technological advances in hybrid single-molecule methods can be turned into an easy-to-use and stable instrument enabling control, visualization and manipulation of single molecules in real time. This gives researchers the power to directly prove molecular mechanisms, in ways not previously possible, allowing you to answer mechanistic questions faster.

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