

Abstract:

Single Molecule Detection at Surfaces: Biomolecule Detection, Identification and Structure Analysis

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Ultrasensitive detection using fluorescence spectroscopy is a fast, elegant and inexpensive way to identify biomolecules. Even the detection of single molecules is possible. Although the detection of such molecules at surfaces is more sophisticated than spectroscopy in bulk solution, the advantages are obvious: The process is faster, relative measurements of binding reactions providing kinetic data at high concentrations is possible and structure analysis can be performed due to the longer observation time of surface linked molecules. We present new ways of establishing tiny detection volumes in the attoliter volume range, applications in life sciences, time resolved measurements in the picosecond range and label free single biomolecule detection in the deep-uv region of the electromagnetic spectrum.

Biography:

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Stefan Seeger (*1962) studied chemistry at the Ruprecht Karl University of Heidelberg and at the Technical University of Berlin. In 1992 he attained a doctorate in chemistry in Heidelberg. Subsequently, Stefan Seeger led the Department of Biophysical Chemistry at the Physicochemical Institute at the University of Heidelberg, where he was appointed a scientific assistant later. Between 1988 to 1992 he studied marketing and management at the University of Hagen.

1995 followed a six month's research stay at the Chemical Center of the University of Lund, Sweden. One year later he attained his habilitation in Heidelberg and in summer 1997 he was appointed as a professor for biochemistry and bio sensor technology at the University of Regensburg.

On 1. November 1999 Stefan Seeger was appointed as a professor for physical chemistry and as director of the Physical Chemistry Institute at the University of Zürich.

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