

The first-ever comprehensive overview of the methods used in this key technology in modern biology provides the latest working knowledge needed by every scientist entering this growing field. It covers all the current technology and application areas, from microscopy and spectroscopy to proteomics and microfluidics.

From the contents:

- Single Molecule Fluorescence Monitoring in Eukaryotic Cells
- Gene Classification and Quantitative Analysis of Gene Regulation in Bacteria using Single Cell Atomic Force Microscopy and Single Molecule Force Spectroscopy
- Cellular Cryo-Electron Tomography (CET)
- Single Cell Proteomics
- Protein Analysis of Single Cells in Microfluidic Format
- Single Cell Mass Spectrometry
- Single Cell Analysis for Quantitative Systems Biology
- Optical Stretcher for Single Cells
- Single Cell Immunology
- Molecular Characterization of Rare Single Tumor Cells
- Single Cell Heterogeneity
- Genome and Transcriptome Analysis of Single Tumor Cells



Photo: Universität Bielefeld

Dario Anselmetti holds the chair in Experimental Biophysics and Applied Nanoscience at Bielefeld University (Germany). He obtained his academic degree in Physics, Mathematics and Astronomy 1987 from Basel University (Switzerland). After receiving his PhD in the field of scanning probe microscopy and nanophysics in 1990, he went as a postdoc to the IBM Research Laboratories in Rüschlikon/Zürich. After a postdoc position at the Institute of Physics at Basel University where he was project leader of an interdisciplinary biosensor project with the industrial partner Hoffmann-La Roche, he joined the research department of Ciba-Geigy (now Novartis) in 1994 where he worked for five years as a project leader in nanobiophysics. After co-managing the Solvias spin-off company in Basel 1999, he returned to academia, taking up his current position in 2000. Dr. Anselmetti has authored over 130 scientific publications in the field of single molecule biophysics, single cell analysis, scanning probe methods, micro- and nanofluidics, lab-on-a-chip, and systems nanobiology. He is a Novartis Leading Scientist (1998) and a member of the North Rhine-Westphalian Academy of Sciences, Humanities and Arts (2005).