

Invited paper

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SHORT REVIEW: PROBING MECHANICAL PROPERTIES OF INDIVIDUAL MOLECULES WITH ATOMIC FORCE SPECTROSCOPY

ABSTRACT *In this short review I will first concisely describe the principles of single-molecule force spectroscopy (SMFS) for measuring the mechanical properties of individual polymeric molecules, as implemented on an Atomic Force Microscope (AFM) platform. Next, I will review a selected number of the most striking, in my opinion, discoveries and observations accumulated in this field of research that now spans over 25 years of dynamic growth. This selection will be limited to biomolecular systems such as DNA and polysaccharides (sugars) that for the last two decades were an important part of my own research. The mechanical properties of single protein molecules are described by the author or other researchers in numerous original or review papers that can be found in the world literature.*

Keywords: *Atomic Force Microscopy, Single Molecule Force Spectroscopy, Nanomechanics, Polymer elasticity, Biopolymers*

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