Novel DNA-Based Molecules and Their Charge Transport Properties

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Abstract

The DNA double-strand recognition, as well as the ability to manipulate its structure open a multitude of ways to make it useful for molecular electronics. Step by step we improve the synthesized constructs and the measurement methods of single DNA-based molecules. I will present new DNA-based metalized molecules and report on our measurements of their energy level structure and transport properties. I will also report new measurements on dsDNA molecules that point out to an unexpected mechanism.

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Figures

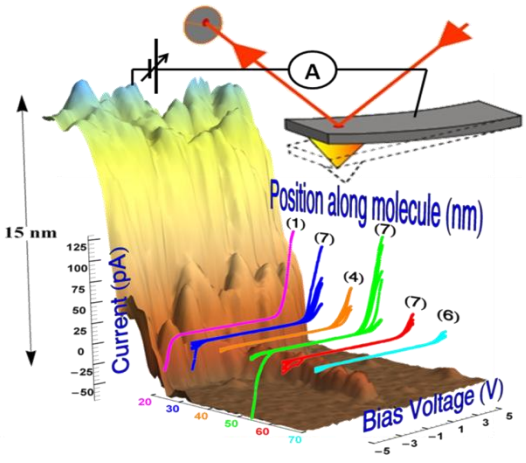

Figure 1. Three dimensional presentation of a G4-DNA molecule protruding from under a sharp metal border.

The AFM tip and electrical circuit are illustrated. On top of the molecule appear current-voltage curves measured on ten different molecules.