**SPM And Charge Transport Measurements Through DNA Molecules Of Complex Sequence**

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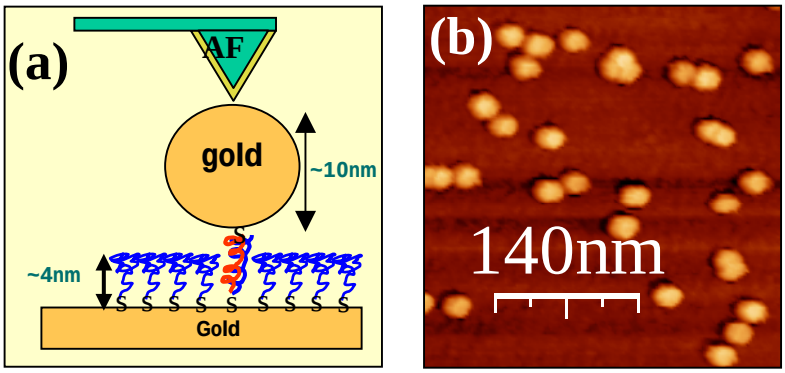


*Schematic of the experiment (a) and a topography image of gold nanoparticles connected through double-stranded DNA to an underlying gold surface surrounded by a single-stranded DNA monolayer.*

Seemingly contradicting results raised a debate over the ability of DNA to transport charge and the nature of the conduction mechanisms through it. We developed an experimental approach for measuring current through DNA molecules, chemically connected on opposite ends to a metal substrate and to a gold nanoparticle, using a conductive atomic force microscope. Many samples could be made due to the experimental approach adopted here that enabled obtaining reproducible results in various samples, conditions and measurement methods. We present multileveled evidence for charge transport through 26 base-pairs long dsDNA of a complex sequence, characterized by S-shaped I-V curves that show currents higher than 220 nA at 2 V. This significant observation implies that a coherent or band transport mechanism takes over for the high currents (> 1 nA).