Abstract Submitted
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Electrostatic force microscopy of DNA molecules GUOQIANG XIA, NINA MARKVOIC, Prof. — The electrical properties of DNA molecules are investigated by electrostatic force microscopy (EFM) experiments. The phase shift of the oscillation of the cantilever can be related to the conductivity of the sample, allowing us to study the electrical properties of these samples without attaching leads. By stretching DNA and zinc-doped DNA on silicon oxide or polystyrene film, we found that the DNA bundles are slightly positively charged and insulating in micrometer range. We found that the phase shift signal depends strongly on the diameter of the DNA bundle: single strands and small bundles show a qualitatively different behavior than large bundles. The results will be discussed in terms of charge transport in DNA molecules.

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