

Abstract Submitted
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Electrostatic force microscopy of DNA under controlled humidity GUOQIANG XIA, NINA MARKOVIC, Johns Hopkins University — Water has profound influence on the properties of DNA. We studied the electrical properties of DNA molecules by electrostatic force microscopy (EFM) experiments under controlled humidity. 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 on silicon oxide, we found that the DNA molecules are slightly positively charged under low humidity and insulating in micrometer range, but became more conductive at higher humidity. We believe these can be explained in terms of DNA polymorphism under different hydration and enhanced ion mobility at higher humidity.

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