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**Abstract** | [References](#) | Full Text: [PDF](#) (415k) | [Related Articles](#) | [Citation Tracking](#)

## Original Paper

Dielectric functions of DNA base films from near-infrared to ultra-violet

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## Abstract

This work is reporting the dielectric functions of DNA base films, i.e. guanine, adenine, cytosine, and thymine in the energy range from near-infrared to ultra-violet. Spectroscopic ellipsometry using synchrotron radiation was employed *in situ* on DNA base films grown on hydrogen terminated Si(111) surfaces under ultra-high vacuum conditions. The optical response of adenine and guanine films is described by a uniaxial model while in the case of thymine and cytosine films an isotropic model was employed. The imaginary part of the dielectric functions  $\epsilon_2$  of the DNA base films is compared with the electronic transitions of single molecules calculated using time-dependent density functional theory. (© 2005 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim)

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