

Abstract Submitted
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Polarization Anisotropy of DNA in Nanochannels FREDRIK PERSSON, Department of Micro- and Nanotechnology, Technical University of Denmark, DTU Nanotech, Building 345 East, DK-2800 Kongens Lyngby (Denmark), FREDRIK WESTERLUND, Nano-Science Center and Department of Chemistry, University of Copenhagen, Universitetsparken 5, DK-2100 Copenhagen Ø (Denmark), JONAS TEGENFELDT, Division of Solid State Physics, Lund University, Box 118, S-221 00 Lund (Sweden), ANDERS KRISTENSEN, Department of Micro- and Nanotechnology, Technical University of Denmark, DTU Nanotech, Building 345 East, DK-2800 Kongens Lyngby (Denmark) — Studies of DNA in nanoscale confinement, where the dynamics and statics of the DNA extension or position is investigated as a function of e.g. DNA contour length, degree and shape of the confinement as well as buffer conditions, has yielded new insight in the physical properties of DNA. Our work extends this field by not only studying the location of fluorescent dyes along a confined DNA molecule but also monitor the orientation of the dyes by measuring the polarization of the fluorescence emission. By choosing a dye which fluorescence polarization is related to the DNA backbone and measuring the emission that is polarized parallel and perpendicular to the extension axis of the stretched DNA, information on the local spatial distribution of the DNA backbone can be obtained. The result is analogous to linear dichroism (LD) on a single-molecule level, and obtained in a highly parallel fashion.

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