Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Confinement spectroscopy: A novel approach to force spectroscopy[1] FREDRIK PERSSON, PAWEL UTKO, WALTER REISNER, ANDERS KRISTENSEN, Technical University of Denmark — In physics DNA is readily described by its mechanical properties, neglecting its chemical composition. By studying variations in these properties conclusions can be drawn about the interaction between DNA and both its environment and also ligand binding to DNA. These investigations are normally performed by force spectroscopy using optical or magnetic tweezers associated with an elaborate experimental setup. We introduce confinement spectroscopy, as a complementary technique, where a continuously variable degree of spatial restriction is applied to the molecule in a fluidic funnel-like geometry. By driving the molecule along the funnel, an extension versus confinement curve is obtained. This curve contains not only information regarding the molecule elasticity, but also new details concerning the self- and surface-interactions of the molecule. It is also easily integrated into lab-on-a-chip devices.

[1]This work was supported by the Danish Research Council for Technology and Production (FTP), grant no. 274-050375.

Anders Kristensen
Technical University of Denmark

Date submitted: 22 Nov 2007 Electronic form version 1.4