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**Generalized force-extension relation for DNA confined in sub-100nm nanoslits** YENG-LONG CHEN, PO-KENG LIN, CHIA-FU CHOU, Institute of Physics and Research Center for Applied Sciences, Academia Sinica — We generalize the force-extension relation of DNA molecules confined in persistence length scale nanoslits. In strong confinement with slit geometry, the segmental correlation length of DNA molecules have two components – in the confined and unconfined dimensions. In the confined dimension, the segmental correlation length is controlled by the slit height. In the unconfined dimension, the segmental correlation length increases as the slit height decreases. We characterize this effect, and generalize how this affects the entropic elasticity of confined DNA molecules. In addition, we investigate the structure of dense strongly confined semi-flexible polymers.

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