

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Recognition Tunneling of Biomolecules¹ PREDRAG KRSTIC, Stony Brook University, BRIAN ASHCROFT, Arizona State University — Complex biomolecules, including DNA polymers, are localized, controlled and detected using a combination of electric fields, fluid flow through synthetic nanopores and tunneling current readouts, transversally to the pores. The key configuration element in the molecular recognition are bio-readers, developed by the Arizona State University, which establish hydrogen bonding with the molecule, which increases the tunneling current and slow down the molecule motion. The thermal fluctuations in the liquid causes a noisy tunneling readout. The recognition is achieved by learning vector machine. By computer simulation of the hydrogen bonding lifetime in presence of thermal fluctuations and using the vector machine analysis we reveal the details of the recognition tunneling in presence of strong noise.

¹Support of NHGRI, through R01-HG006323 acknowledged.

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Date submitted: 31 Jan 2014

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