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Probing Single Molecule Capture By a Solid State Nanopore
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— We investigate the capture of a single molecule of DNA from solution by a solid state nanopore. We model the motion of DNA near the pore as due to a combination of electrophoretic and thermal forces. We test this model by reversing the driving voltage and recapturing individual molecules soon after they translocate through the nanopore. We find that DNA molecules are drawn to the pore by electric forces over micron scale distances, that the probability of capture decreases linearly with distance from the pore over this distance, and that, in our experimental conditions (120 mV applied voltage, $\sim$5 nm dia pore), molecules enter the pore immediately upon arrival.

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