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Tunneling Currents through DNA Bases Tightly Constrained in a Fluid Channel[1] LUKE A SOMERS, Rutgers University, MANUEL SCHOTTDORF, Max Planck Institute for Dynamics and Self-Organization, MENI WANUNU, Northeastern University, EVA Y. ANDREI, Rutgers University — Directing single-stranded DNA through a tunnel-junction is a strategy for rapid DNA sequencing. The main limiting factor in the viability of this method is coercing the ssDNA strand to pass only directly between the tunneling tips. This both ensures sequencing completely in order and minimizes the geometric effects on tunneling. We present such a device and results of tunneling through different bases. This device, employing graphene as a super-thin electrode, lies entirely in-plane rather than acting through a membrane. This geometry enables dense packing of devices with a minimum of fabrication.

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