

Abstract Submitted
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Graphene Trans-Electrode Membranes AARON KUAN, LU BO, RYAN ROLLINGS, DON DRESSEN, DANIEL BRANTON, JENE GOLOVCHENKO, Harvard University — We report an electrical study of suspended single-layer graphene membranes separating reservoirs of electrolyte solution. Because the opposing reservoirs are separated only by an atomically thin membrane, the trans-conductance (ionic current response to a voltage across the membrane) is extremely sensitive to nanoscale defects in the membrane. This sensitivity allows the precise examination and characterization of intrinsic defects in graphene membranes, as well as engineered defects for devices. We will discuss methods for creating single nanopores or distributed defects in our graphene membranes, with the applications of nanopore DNA sequencing and water desalination in mind.

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