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A Fluid Channel Coincident With Graphene Tunneling Leads for DNA sequencing[1] LUKE SOMERS, Rutgers University, MANUEL SCHOTTDORF, Universität Würzburg, CHRIS FARINA, Rutgers University, MENI WANUNU, Northeastern University, EVA ANDREI, Rutgers University — One of the strategies towards controlled DNA sequencing by electrical readout of individual bases has been to direct single-stranded DNA through a tunnel junction. For this method to be viable, the DNA must be severely constrained to minimize geometric factors. We present a method for creating fluid channels the size of tunnel junctions, with tunneling leads across them. The fluid channel is formed by Atomic Layer Deposition around a gold wire thinned by feedback-controlled electromigration. The channel itself is used as a mask to assist in defining the tunneling leads out of graphene by electroburning. The principal reasons for selecting graphene are its proven tunnelling sensing ability, stability, and exceeding thinness.

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