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Investigating Nanopore Spatial Resolution Using Locally Coated RecA-dsDNA Filaments A.R. HALL, S.W. KOWALCZYK, C. DEKKER, Kavli Institute of Nanoscience, Delft Institute of Technology — The translocation of molecules through nanometer-scale apertures has garnered much attention as a future sequencing method. Many challenges remain, including the high spatial and temporal resolution needed to do so. We examine the spatial limits of these measurements by translocating partially complexed RecA nucleoprotein filaments. These are dsDNA polymerized with discrete RecA protein patches of random length, ranging from a few monomers to full coverage (average length ~ 10 kbp). With these molecules, we use nanopores for the first time to map the location of features along the length of a single molecule. We show that resolution of less than 500 bp is achieved and discuss the implications on translocation measurements.

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