

Abstract Submitted
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Graphene Nanopores for DNA Fingerprinting¹ TOWFIQ AHMED, Los Alamos National Laboratory, ALEXANDER V. BALATSKY, Los Alamos National Laboratory and Nordic Institute of Theoretical Physics (Nordita), J.T. HARALDSEN, Los Alamos National Laboratory, IVAN K. SCHULLER, M. DI VENTRA, University of California, San Diego, K.T. WIKFELDT, Nordic Institute of Theoretical Physics (Nordita) — The recent progress in nanopore experiments with transverse current is important for the development of fast, accurate and cheap finger-printing techniques for single nucleotide. Despite its enormous potential for the next generation DNA sequencing technology, the presence of large noise in the temporal spectrum of transverse current remains a big challenge for getting highly accurate interpretation of data. In this paper we present our *abinitio* calculations, and propose graphene based device for DNA fingerprinting. We calculate transmission current through graphene for each DNA base (A,C,G,T). As shown in our work, a proper time-series analysis of a signal provides a higher quality information in identifying single bio-molecule is translocating through the nanopores.

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