

Abstract Submitted
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Theory of molecular hysteresis switch MORTKO KOZHUSHNER,
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— Molecular hysteresis switching has been recently observed in a series of experiments that measured the I-V spectrum of bipyridyl-dinitro oligophenylene-ethylene dithiol (BPDN) based molecular devices [1]. The experimental observations clearly show the presence of Coulomb blockade in single organic molecules that is responsible for the voltage-induced switching. We present the theory of the hysteresis switch which explains the non-linear hysteresis I-V characteristics based on the mechanisms of Coulomb blockade and the existence of two different molecular conformations of neutral and charged states of the molecule. [1] A.S. Blum, J.G. Kushmerick, D.P. Long, C.H. Patterson, J.C. Yang, J.C. Henderson, Y.X. Yao, J.M. Tour, R. Shashidhar, and B.R. Ratna, “*Molecularly inherent voltage-controlled conductance switching*”, Nature Materials **4**, 167 (2005).

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