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**Conformational and Voltage Gating in a Molecular Three Terminal Device** SAIKAT MUKHOPADHYAY, RAVINDRA PANDEY, Michigan Technological University, SHASHI KARNA, Army Research Laboratory — The effect of the conformational changes in the gate arm of a three terminal molecular device is investigated. The donor-acceptor molecular moieties connected through a ring describe the two arms, whereas a  $\pi$ -conjugated molecular wire is used as a gate in the proposed architecture. In the absence of the gate field, the device exhibits current switching between the non-planar and planar orientations of the  $\pi$ -electron moieties with respect to each other with maximum  $I_{(ON)}/I_{(OFF)} = 14$ . When the gate field is applied,  $I_{(ON)}/I_{(OFF)}$  ratio decreases, thus suggesting that the effects of the conformational changes in the gate arm and the applied gate field oppose each other in the architecture considered. Furthermore, the tunneling current corresponding to conformational gating in two different directions appears to exhibit oscillatory nature with a phase factor of  $\pi/2$  in presence of the gate field.

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