

Abstract Submitted  
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**A Multifunctional Organic Bistable Device**<sup>1</sup> BIN LI, JUNG-WOO YOO, CHI-YUEH KAO, The Ohio State University, HO WON JANG, CHANG BEOM EOM, University of Wisconsin-Madison, ARTHUR J. EPSTEIN, The Ohio State University — Bias-controlled spin valve effect is observed in an organic bistable device using rubrene ( $C_{42}H_{28}$ ) as an organic semiconductor channel, half-metallic LSMO and Fe as the two ferromagnetic electrodes. The device displays reproducible switching between a low-impedance (ON) state and a high-impedance (OFF) state by applying different polarities of high biases. In the ON state, the device shows a spin valve effect with magnetoresistance (MR) values up to 3.75 %. The observed spin valve effect disappears when the device recovers to the initial OFF state. This bias induced switching of the conductive states, as well as the spin valve effect, promise multiple functionalities for organic bistable devices.

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