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Analysis of the Polarity of the Threshold Voltage in Au/Monolayer/Ag Cross-wire Tunnel Junctions KEVIN ANDRING, LAM YU, University of Memphis — The development of a nanoscale switch element is an important step in producing the next generation of low-power, low-cost, high density electronic devices. The cross-wire tunnel junction has been shown to provide a reliable platform for analyzing the switching characteristics of Au/monolayer/Ag junctions. Our previous results suggest that changing the moiety of thiolates in the monolayer used in the junction could be responsible for changing the polarity of the threshold voltage necessary to induce the switching behavior of the junction. Here we use molecules with different surface functional groups of CH_3, OH, and Br with high, medium, and low wettabilities to investigate whether the surface energy of the monolayer directly affects the polarity of the threshold voltage.

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