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Voltage Triggered Hysteretic Switching of VO_2 at Room Temperature[1] JEEHOON KIM, CHANGHYUN KO, ALEX FRENZEL, SHRIRAM RAMANATHAN, JENNIFER E. HOFFMAN, Harvard University — Vanadium oxide (VO_2) is known to undergo an insulator-to-metal transition near 340K; because of this proximity to room temperature, VO_2 is a promising candidate material for technological applications such as sensors and memory devices. We use conducting atomic force microscopy to investigate the voltage triggered insulator-to-metal transition in VO_2 at the nanoscale. We observe hysteretic resistance switching as a function of locally applied electric field, at room temperature. We correlate the hysteresis loop shape with surface morphology.

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