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Electric-pulse-induced resistive switching in Cr-doped Ti₂O₃ thin films ZHONGWEN XING, Dept. of Materials Science and Engineering, Nanjing University, NAIJUAN WU, ALEX IGNATIEV, Center for Advanced Materials and Department of Physics, University of Houston — The electrical-pulse-induced resistive switching effect is studied in (Ti_{0.85}Cr_{0.15})₂O₃ (TCO) films grown on Ir-Si substrates by pulsed laser deposition. Such a TCO device exhibits bipolar switching behavior with an EPIR ratio as large as about 1000% and threshold voltages smaller than 2V. The resistive switching characteristics may be understood by resistance changes of a Schottky junction composed of a metal and an n-type semiconductor, and its nonvolatility is attributed to the movement of oxygen vacancies near the interface.

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