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**Memristive phase switching in two-dimensional 1T-TaS2 crystals**

MASARO YOSHIDA, TAKASHI GOKUDEN, RYUJI SUZUKI, YIJIN ZHANG, MASAKI NAKANO, YOSHIHIRO IWASA, Department of Applied Physics, The University of Tokyo — Among 2D materials with correlated electrons, 1T-TaS2 is one of the most attracting systems with charge density wave (CDW) phases [1]. In this presentation, we report an electrical switching between various non-volatile metastable electronic phases in 1T-TaS2 thin flakes. By applying a high lateral electric field, we realized multiple metastable states, where the system shows truly metallic behavior. The emergence of novel ground states, possibly stabilized by the slow kinetics due to the reduced dimensionality [2], reflects the electronic complexity in 2D materials with nanometer thickness. [1] M. Yoshida et al. *Sci. Rep.* 4, 7302 (2014); [2] M. Yoshida et al. *Sci. Adv.* 1, e1500606 (2015).

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