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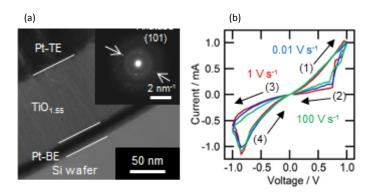


Fig. S1 (a) Cross-section TEM image and ED pattern of rutile-type ${\rm TiO}_x$ thin films. (b) *I-V* characteristics of 100 nm-thick ${\rm TiO}_x$ thin films, measured at a voltage sweep rate of 100 V s⁻¹ (–), 1 V s⁻¹ (–) and 0.01 V s⁻¹ (–).