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Electro-photo double modulation on the resistive switching behavior and switchable photoelectric effect in BiFeO films KUIJUAN JIN, LE WANG, Institute of Physics, CAS — We present an electro-photo double modulation on the resistive switching behavior, combining the electro-resistance effect and the photo-resistance effect. The pulse voltages can lead to nonvolatile resistance variations in the Au/BiFeO3/La0.7Sr0.3Mno3 structure, and the laser illumination can also modulate the high and low resistance states. Consequently, four stable resistance states are achieved. Furthermore, we report a switchable photoelectric effect, in which a photocurrent can be created under illumination of the ultraviolet laser, and the direction of the photocurrent depends on the ferroelectric polarization. The present results should have potential applications to develop multi-state memory devices based on perovskite oxides.

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