Switchable Metallic Mirrors with Long Memory Effect

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An ordinary silver mirror, coated on its back surface with silver, reflects light to produce high quality of images by reflection, owing to the high reflectivity of silver. Recently, tunable mirrors, including liquid-liquid interfacial mirrors started to gather attentions by its high applicability for smart windows, light modulators, and chemical sensors. On the other hands, reversible electrochemical mirrors (REMs) are designed to modulate their reflectance, from a highly reflective state enough to mirror a subject to a highly transparent state, according to external stimuli such as electricity, light, or heat. A number of REMs have been suggested, however, none reached widespread practical application because of critical problems such as the poor stability of the mirror state and lack of bistability in reflectance. Thus, there remain very important challenges to realizing switchable silver mirrors with long memory effect to afford bistable reversible electrochemical mirrors (BREMs). Herein, we report an electrochemically stable, and bistable reversible electrochemical mirror (BREM), for the first time.

[1] Reference