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An All-Inorganic Perovskite Solar Capacitor for Efficient and Stable Spontaneous Photocharging

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ABSTRACT

Integrated energy “harvesting-storage” devices, especially photocharging devices that can simultaneously achieve the functions of photoelectric energy conversion and electrochemical energy storage, have attracted enormous attention to serve as sustainable and portable distributed power sources. However, the performance of photocharging devices is usually restricted by small voltage plateau and low energy conversion efficiency. Herein, we report a novel “solar capacitor” realized by combining a CsPbBr₃ based all-inorganic perovskite solar cell (PSC) and an all-inorganic silica-gel-electrolyte based supercapacitor into a single device. Benefited from the synergy of these two components, the solar capacitor can simultaneously realize the functions of solar power harvesting and electrochemical energy storage

¹ These authors contributed equally to this work.

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