Fabricating Ferromagnetic MoS_2 Based Composite Exposed to Simulated Sunlight for Sodium Storage

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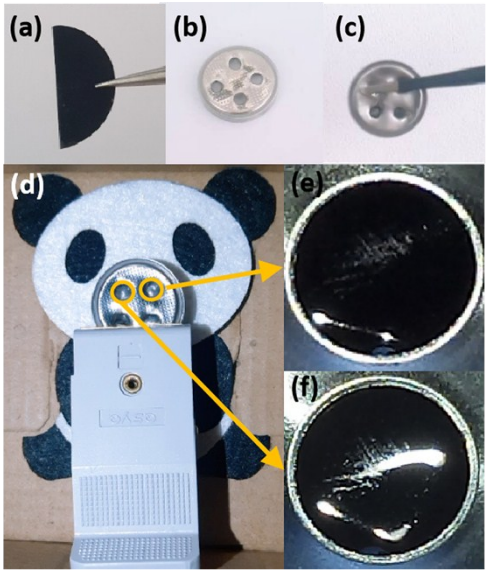

Fig. S1 (a) The folded free standing active material circular disc, (b) The punched battery case, (c) The fabricated battery isolated from the air conditions, (d) The optical photograph of one fabricated battery exposed to simulated sunlight undergone LAND battery test and (e), (f) their corresponding amplified schematic pictures.

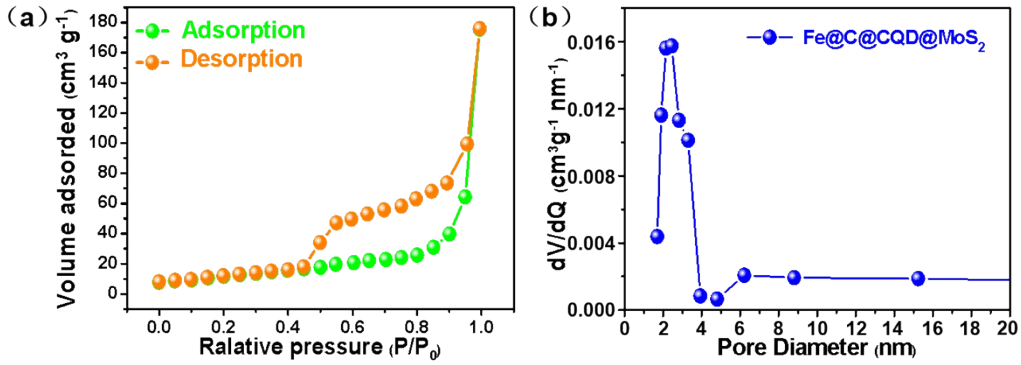

Fig. S2 (a) N_2 adsorption and desorption isotherm and (b) pore size distribution of Fe@C@CQD@MoS_2.

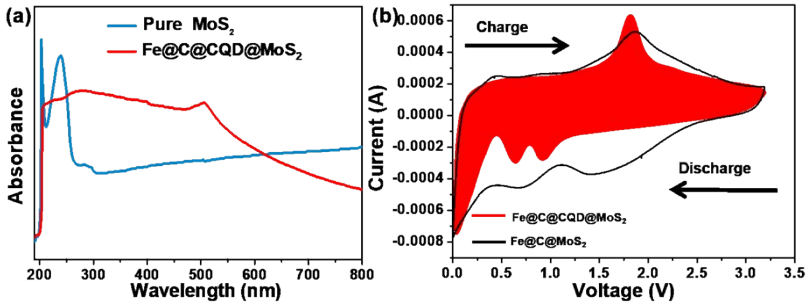

Fig.S3 (a) Ultraviolet-visible light absorption spectrum of pure MoS_2 and Fe@C@CQD@MoS_2, (b) The CV comparison images of Fe@C@CQD@MoS_2 and Fe@C@MoS_2.

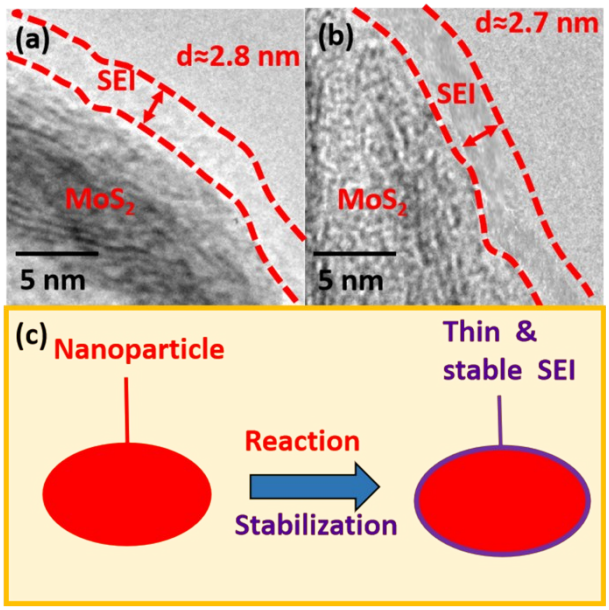

Fig.S4 (a) and (b) high-magnification TEM image of Fe@C@CQD@MoS_2 nanoparticles after exposed to simulated sunlight 2 min and 200 cycles, (c) schematic evolution of the SEI reactivation.

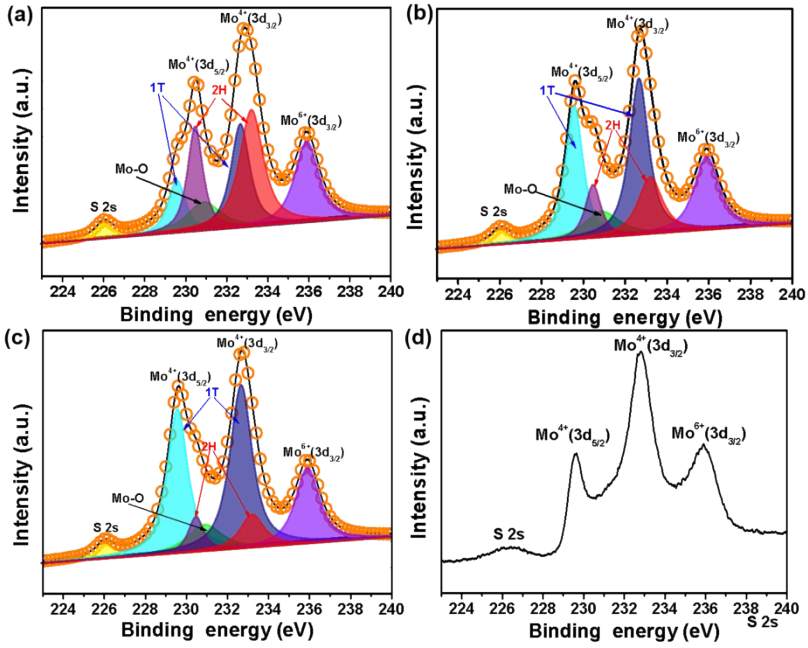

Fig. S5 XPS spectrum of 2H and 1T MoS_2 at different time.

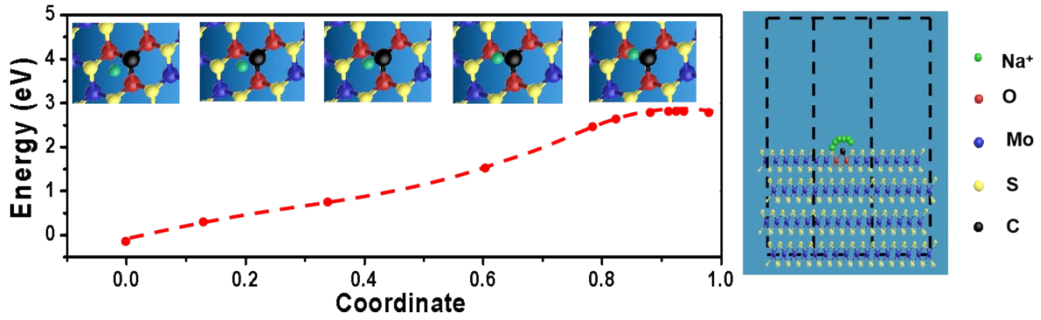

Fig. S6 Na migration pathways and barriers for Fe@C@MoS_2.

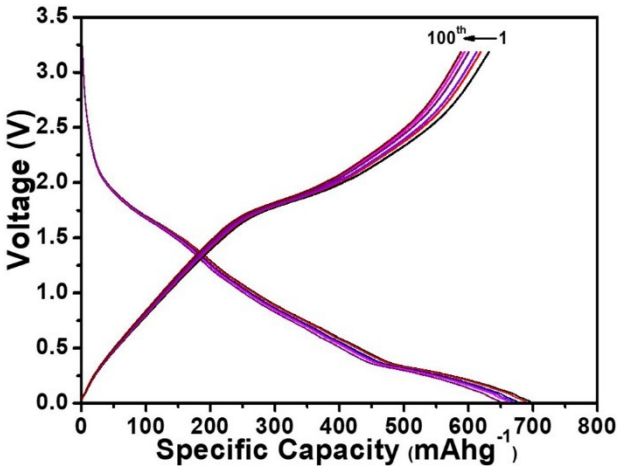

Fig. S7 The charge and discharge profiles of Fe@C@CQD@MoS_2 for repeated 100 cycles.

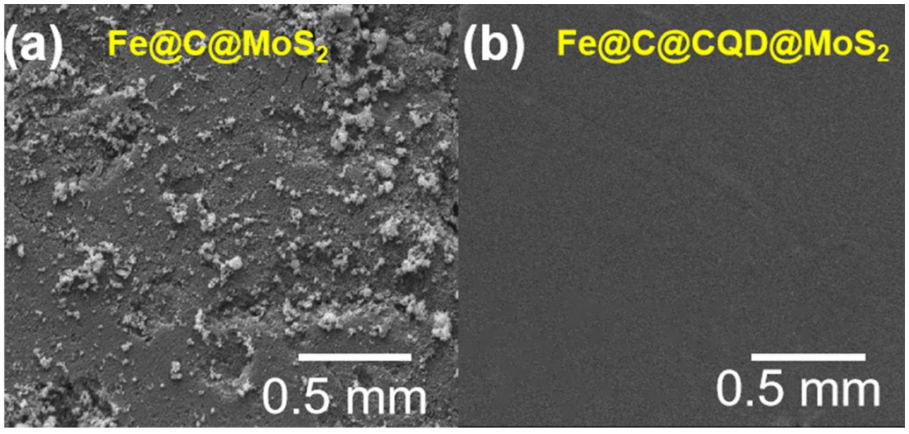

Fig. S8 The SEM images of collectors (a) Fe@C@MoS_2 (b) Fe@C@CQD@MoS_2.

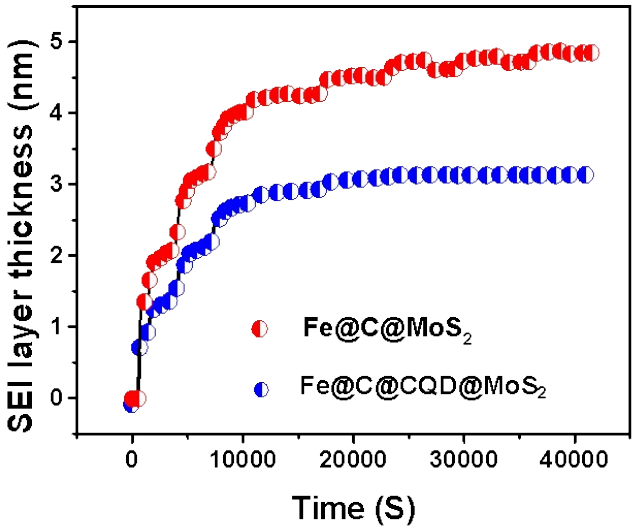

Fig. S9 The calculated SEI film variation according to comsol multiphysics model.

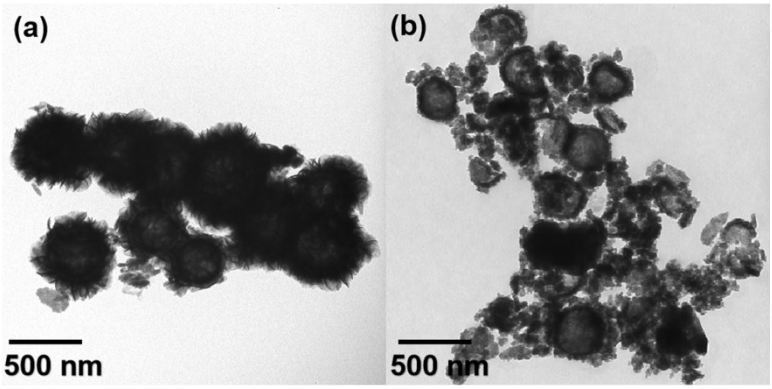

Fig. S10 The TEM image comparison of (a) Fe@C@CQD@MoS_2 and (b) Fe@C@MoS_2 after 500th cycles at 500 mAg^{-1}.

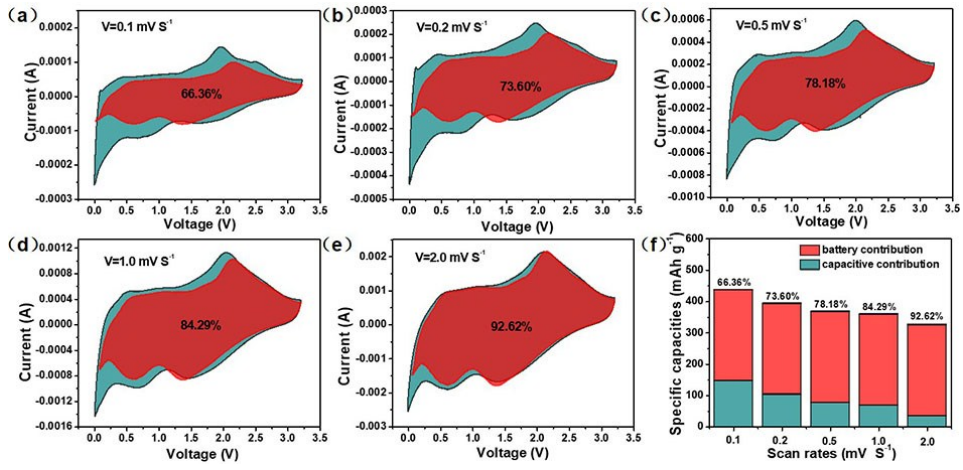

Fig. S11 CV profiles of capacitive contribution at scan rates from 0.1 to 2 mV/s (a-e). (f) Specific capacities generated from battery contribution and capacitive contribution at different scan rates for Fe@C@CQD@MoS_2.

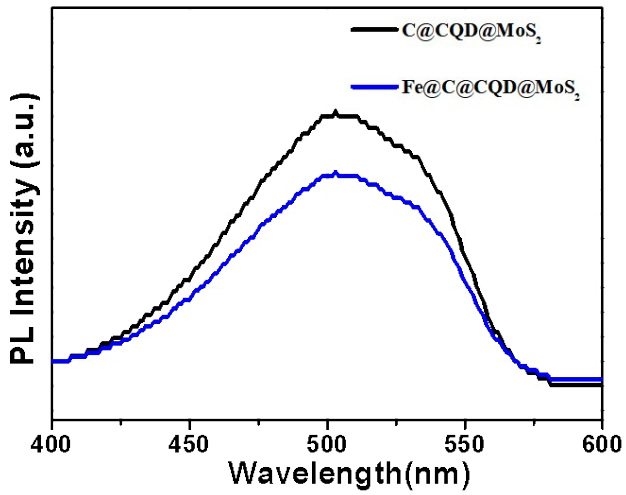

Fig. S12 The PL comparison files of Fe@C@CQD@MoS_2 and C@CQD@MoS_2.

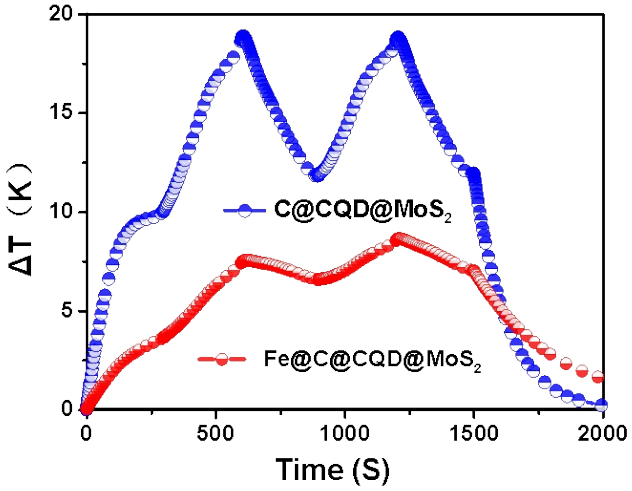

Fig. S13 The temperature variation base on such Fe@C@CQD@MoS_2, C@CQD@MoS_2 as time increases.