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RSC Advances Supporting Information

MoO_2 Nanocrystals Interconnected on Mesocellular Carbon Foam as Powerful Catalyst for Vanadium Redox Flow Battery

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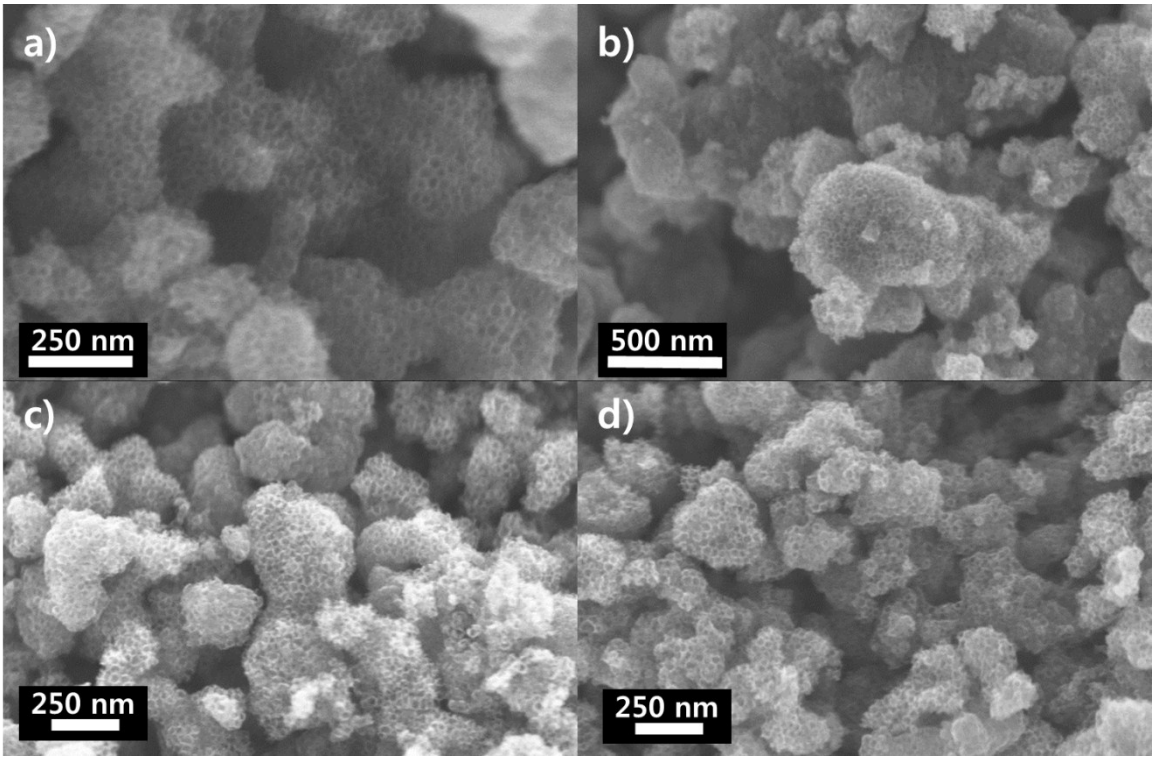

Fig. S1. Scanning electron microscopy images for a) MSU-F-C, b) MoO_2/MSU-F-C-1, c) MoO_2/MSU-F-C-2, and d) MoO_2/MSU-F-C-3, respectively.

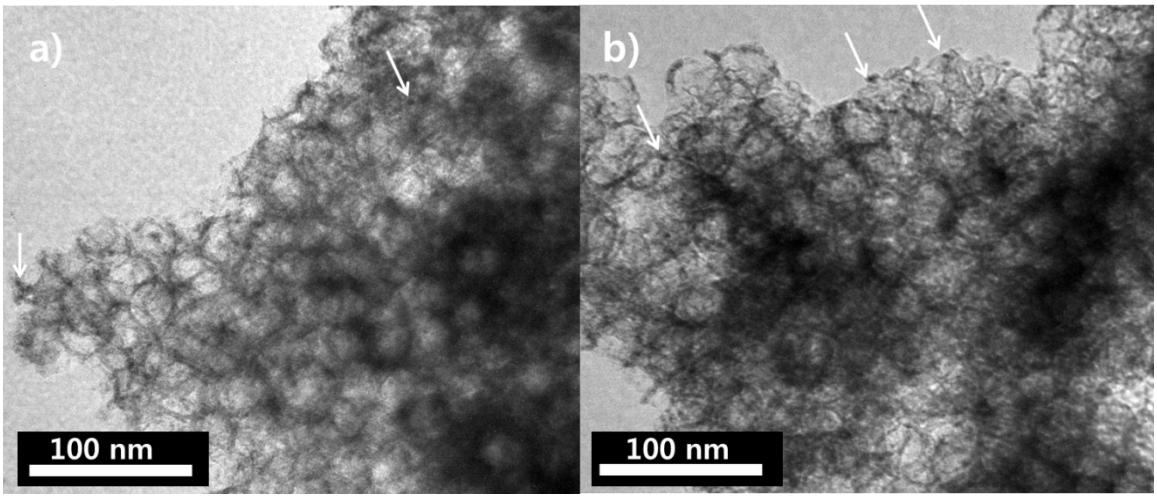

Fig. S2. Transmission electron microscopy images for a) MoO_2/MSU-F-C-1 and b) MoO_2/MSU-F-C-2.

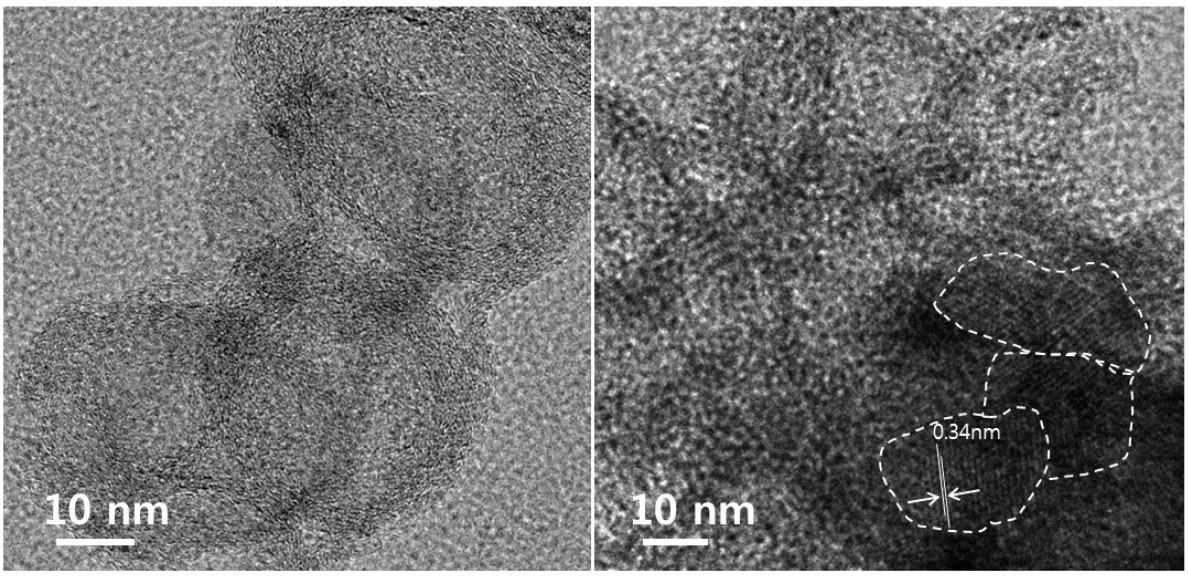

Fig. S3. High resolution transition electron microscope images of a) MoO_2/MSU-F-C-1 and b) MoO_2/MSU-F-C-3 (the marked space corresponds with (-111) plane of MoO_2).

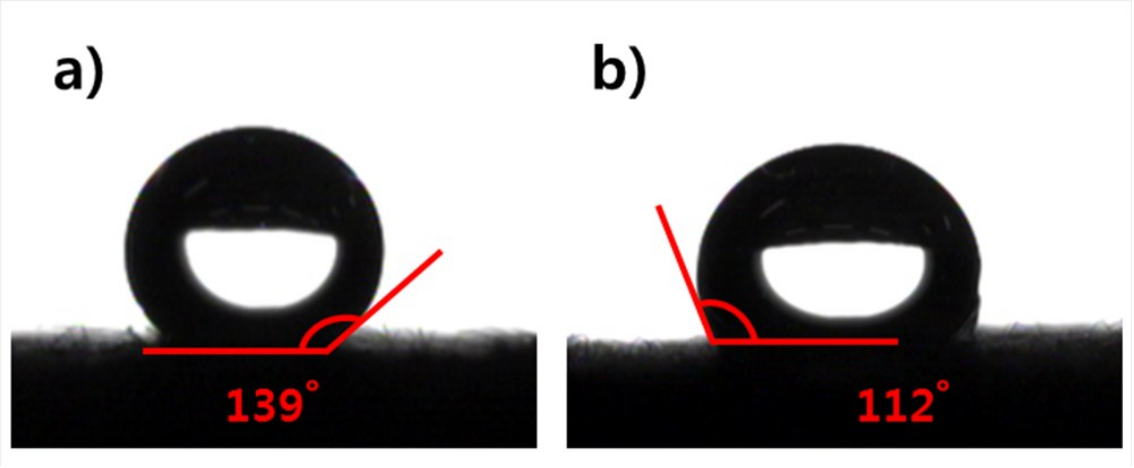

Fig. S4. The static contact angles of water drop on a) MSU-F-C and b) MoO_2/MSU-F-C-2 electrodes, respectively.

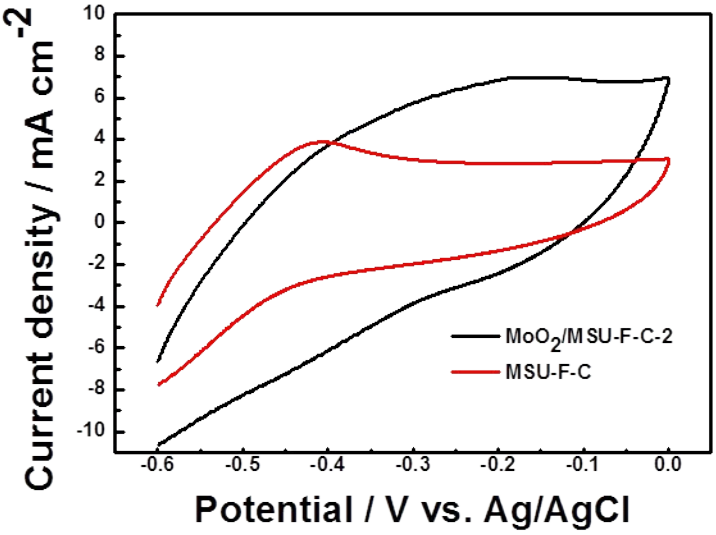

Fig. S5. CV curves of MoO_2/MSU-F-C-2 and MSU-F-C catalysts measured under electrolyte of 0.1 M $VOSO_4$ + 0.1 M H_2SO_4. Potential scan rate was 100mV s^{-1} and potential scan range of CVs was from - 0.6 to 0.0 V vs. Ag/AgCl.

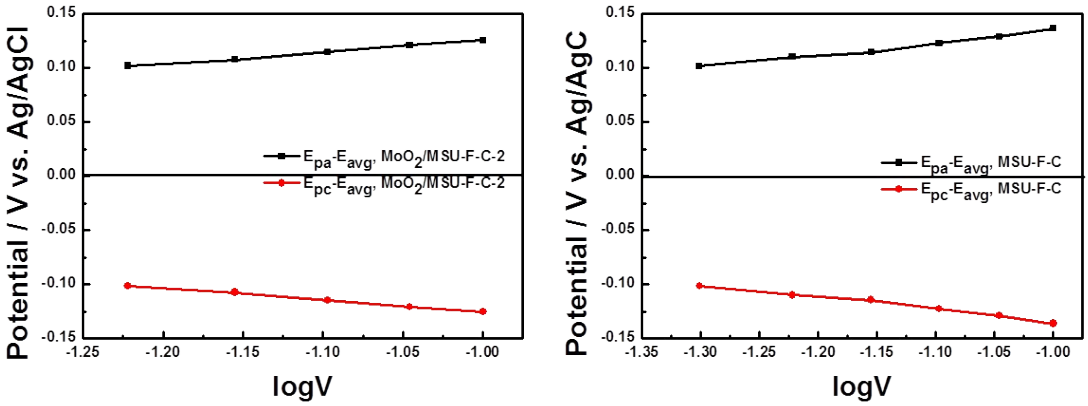

Fig. S6. Relationships between logarithms of scan rates and differences in redox peak potentials and average peaks.

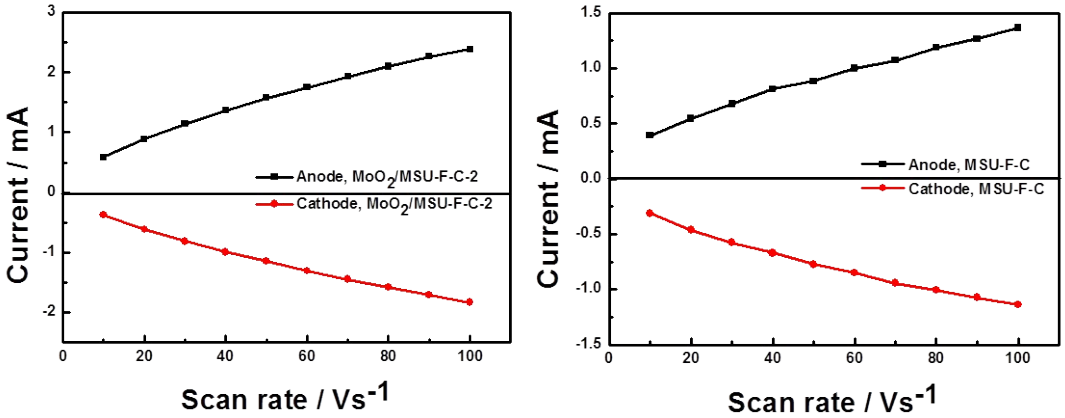

Fig. S7. Relationships between potential scan rates and redox peak currents.

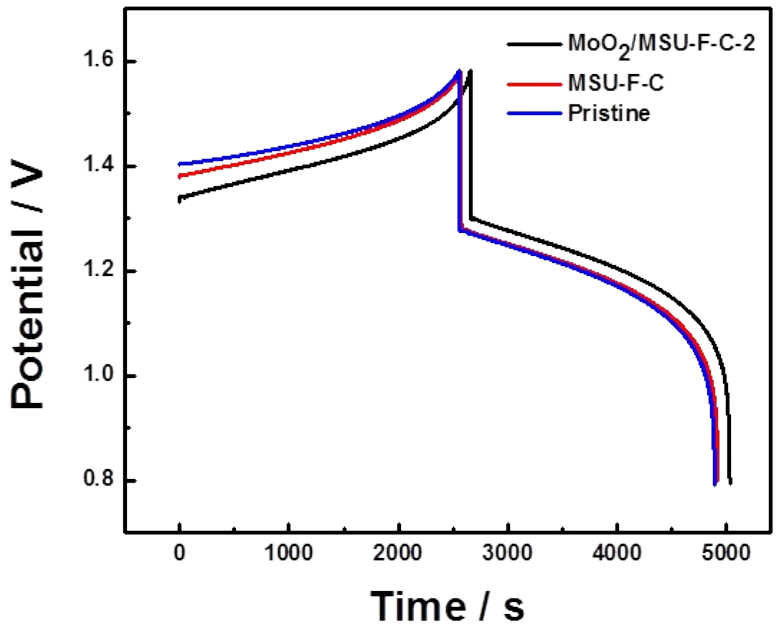

Fig S8. Charge–discharge curves of the 15th cycle of VRFB single cells consisting of MoO_2/MSU-F-C, MSU-F-C catalysts, and graphite felt as positive electrode at current density of 40 $mAcm^{-2}$.

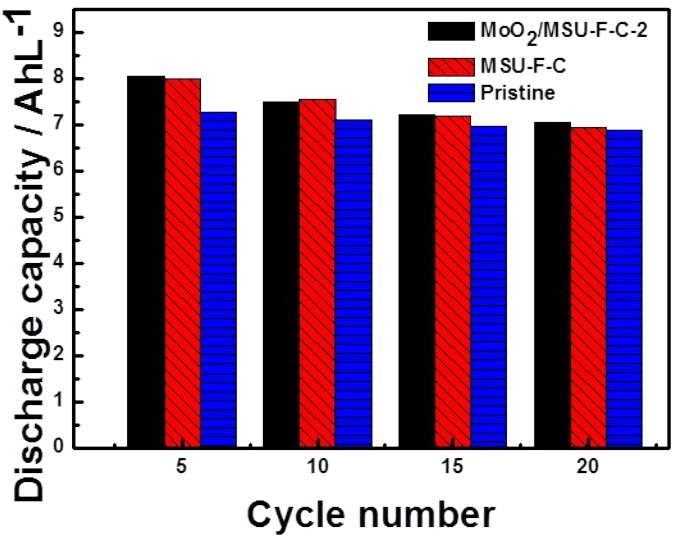

Fig. S9. Discharge capacity of VRFB single cells consisting of MoO_2/MSU-F-C, MSU-F-C catalysts, and graphite felt as positive electrode at current density of 40 $mAcm^{-2}$.