

Electronic Supplementary Information (ESI)

**Sponge-like Porous Manganese(II,III) Oxide as a Highly
Efficient Cathode Material for Rechargeable Magnesium
Ion Batteries**

Lu Wang¹, Karina Asheim¹, Per Erik Vullum², Ann Mari Svensson¹ and Fride
Vullum-Bruer^{1,*}

¹ Department of Materials Science and Engineering, NTNU, Norwegian University of
Science and Technology, NO-7491 Trondheim, Norway

² SINTEF Materials and Chemistry, NO-7491 Trondheim, Norway

* Corresponding Authors. E-mail: fride.vullum-bruer@ntnu.no

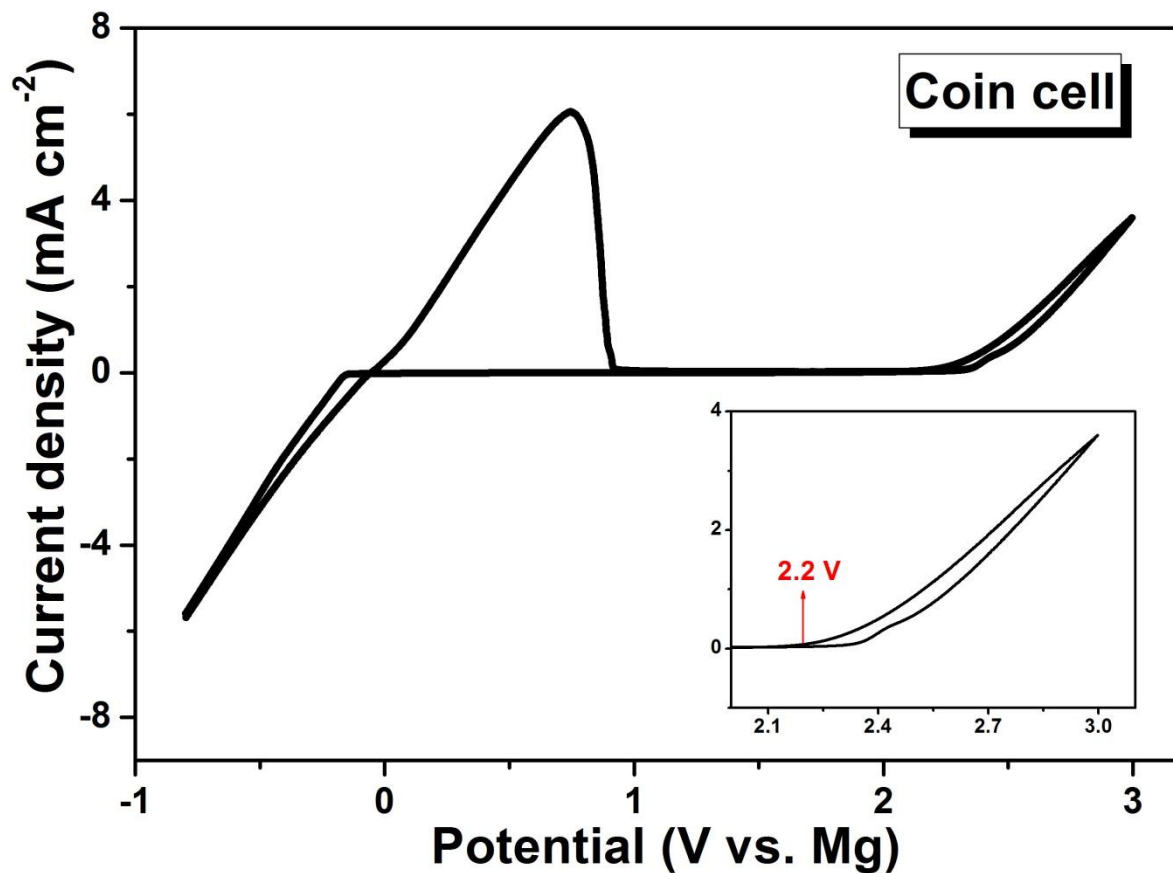


Figure S1. Typical cyclic voltammograms of Mg deposition-stripping in 0.4 M APC electrolyte. Experiments are conducted on a coin cell, at a scan rate of 10 mV s⁻¹ and room temperature with Mg metal as reference- and counter electrode. The inset shows the enlargement of the area between 2.1 and 3V.

Outside



Inside



Figure S2. The photographs of a dissembled coin cell after 1000 cycles charge/discharge. The cell was washed by THF in order to clean the residual electrolyte and dried 2 hours at room temperature under vacuum.

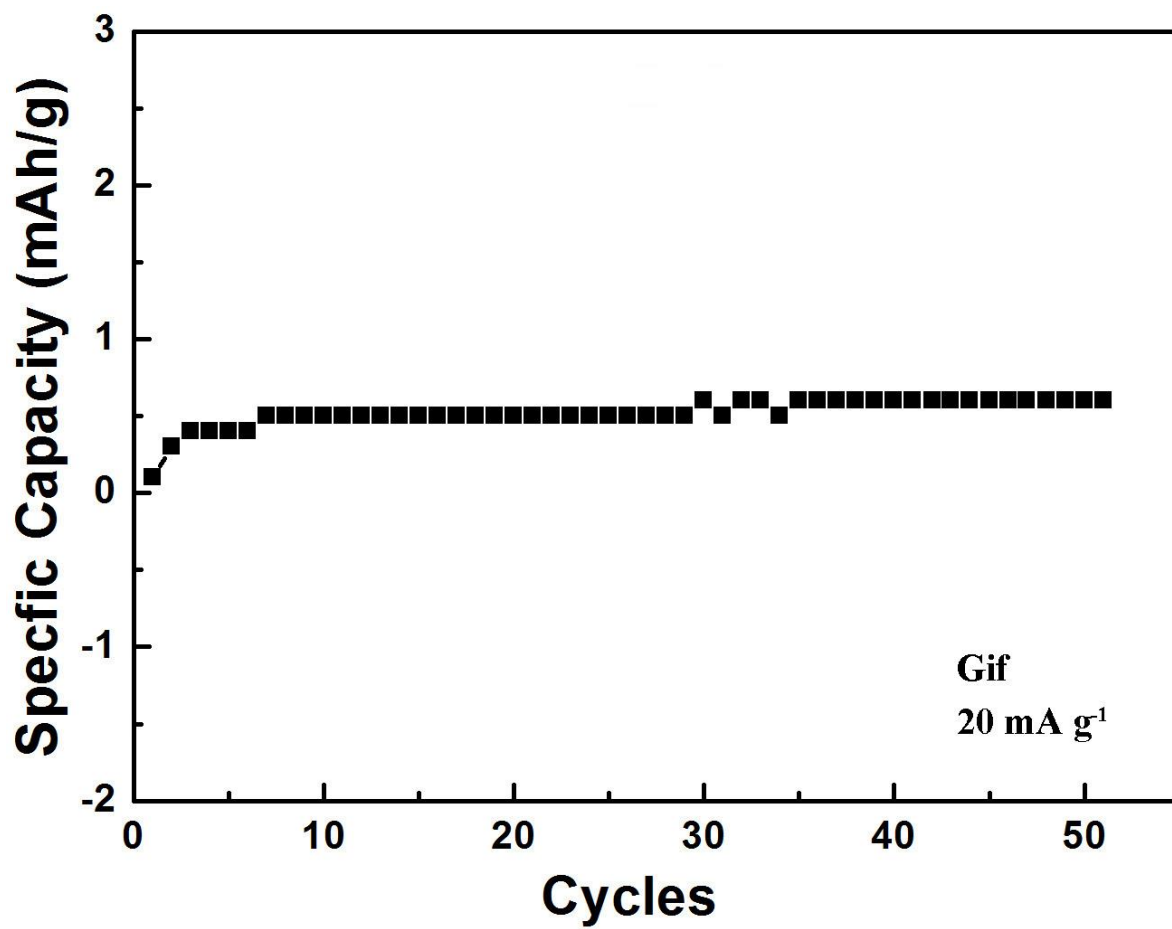


Figure S3. Cyclic stability of pure Gif cycled at 20 mA g⁻¹.

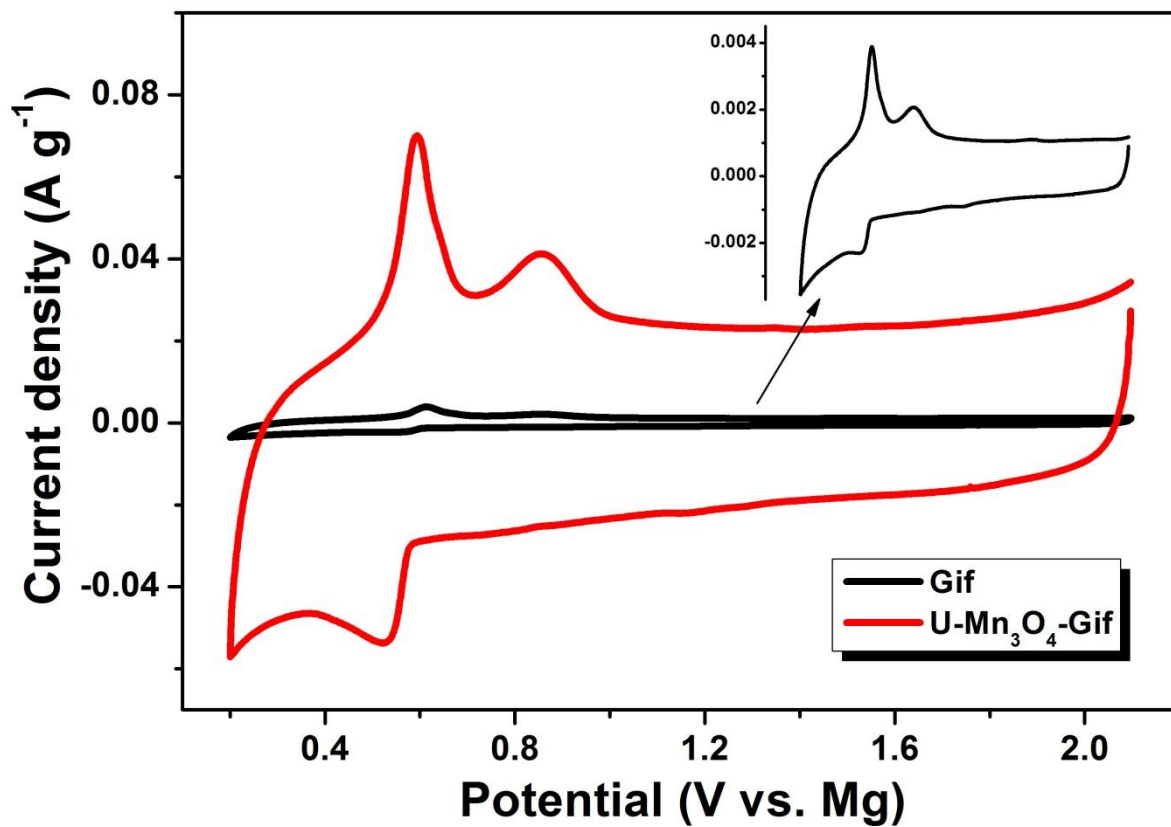


Figure S4. CV curve of U-Mn₃O₄ at the scan rate of 0.2 mV s⁻¹ compared with pure Gif. The inset shows the CV curve of Gif.