

Supplementary information

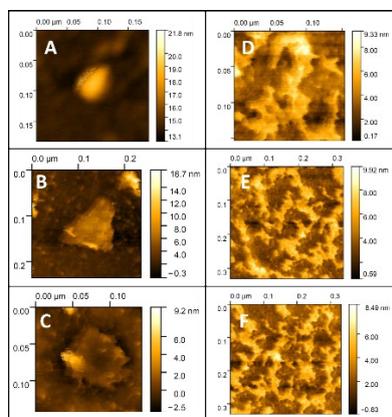


Figure S1. AFM images of 0.5 wt % Co-GaInSn produced in 10 mM HCl which is fresh (A, B and C) and after 1 week (D, E and F).

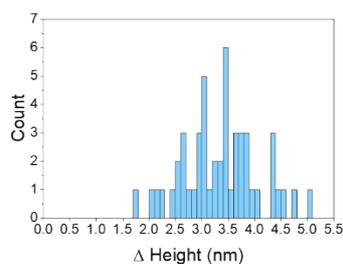


Figure S2. Histogram of 50 measurements of CoO_x sheets from 0.5 wt % Co-GaInSn produced in 10 mM HCl that was allowed to age for 1 week.

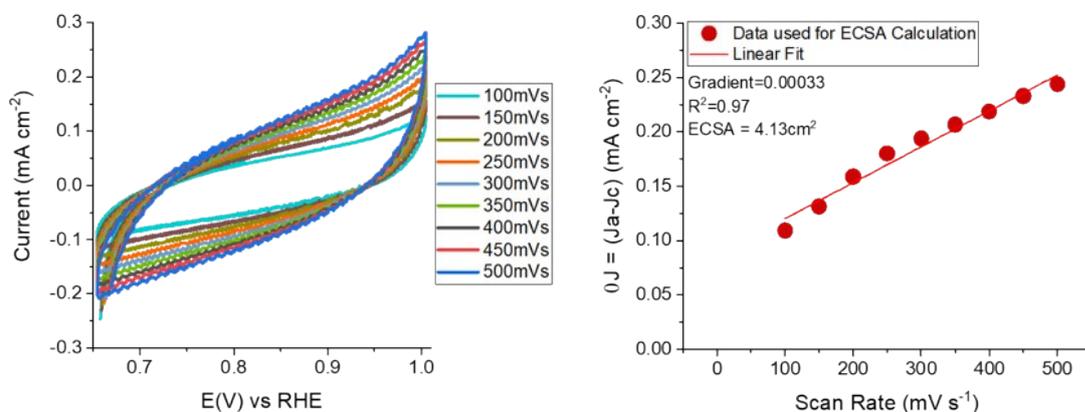


Figure S3. Cyclic voltammograms recorded for 2D CoO_x in 0.1 M NaOH at various scan rates in the double layer charging region. Plot of capacitive current obtained at 0.85 V vs RHE versus sweep rate.

The Electrochemically active surface area was calculated using the gradient of the plot, assuming that a flat surface has a specific capacitance of $40 \mu\text{F cm}^{-2}$, method adopted by *Deng et al.*

1. Deng, H., et al., Laser induced MoS_2 /carbon hybrids for hydrogen evolution reaction catalysts. *Journal of Materials Chemistry A*, 2016, **4**, 6824-6830.

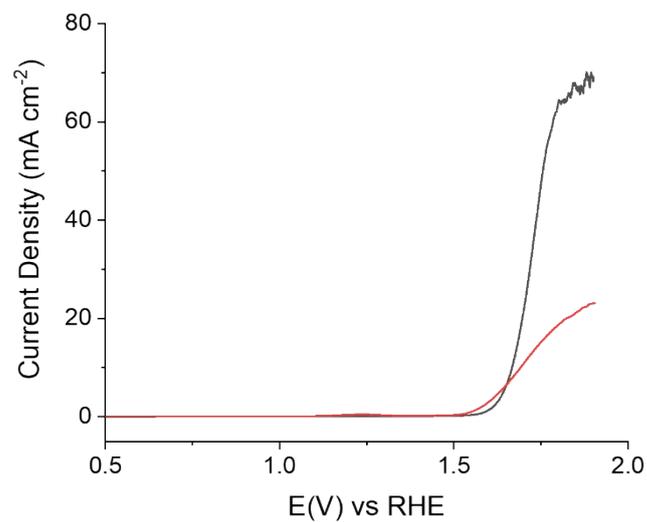


Figure S4. Cyclic voltammogram of a fresh (black) and 1 week old (red) CoO_x nanosheets from 0.5 wt % Co-GaInSn in 10 mM HCl sample.