

Video 1: CV of Ni(OH)₂ electrode SIL1 after formation. 3 cycles, 0.2-0.6 V vs. Hg/HgO, at scan rate 5 mV s⁻¹. The same data is also shown in **Figure 1(c)**.

Video 2: CV of Ni(OH)₂ electrode ED1, as deposited. 1 cycle, 0.2-0.55 V vs. Hg/HgO, at scan rate 0.33 mV s⁻¹. The same data is also shown in **Figure S2**.

Video 3: Galvanostatic charging of Ni(OH)₂ electrode ED2, After one GCD cycle. Charging current 10 mA (35.7 μA cm⁻²). The same data is also shown in **Figure S3**.

Video 4: CV of Ni(OH)₂ electrode SIL2 after formation. 2 cycles, CV, 0.2-0.54 V vs. Hg/HgO, at scan rate 1 mV s⁻¹. The same data is also shown in **Figure S4**.

Video 5: Galvanostatic charging of Ni(OH)₂ electrode SIL3 after formation. Charging current 20 μA (71.4 μA cm⁻²). The same data is also shown in **Figure 2**.

Video 6: Galvanostatic charging of Ni(OH)₂ electrode SIL4, as deposited. Charging current 100 μA (357.1 μA cm⁻²). The same data is also shown in **Figure S5**.

Video 7: CV of Ni(OH)₂ electrode SIL1, as deposited. 3 cycles, 0.2-0.6 V vs. Hg/HgO, at scan rate 5 mV s⁻¹.