## **Supplemental Information**

## **Capacity-Weighted Figures-of-Merit for Battery Transport Metrics**

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**Supplemental S1**. Repeat of Figure 2 from main text using the dQ/dV from the ICI technique itself (a,d). The resulting weighing function is constant and without noise. Therefore, using the diffusivities from ICI (b,e), the weighted diffusivities (c,f) can be summed to get  $D_{Qav}$ .



**Supplemental S2.** The dQ/dV data for Sample A (a) both the direct derivative and (b) after smoothing and re-binning.