Supplementary Information

Mechanics-modified equilibrium potential for linear-elastic electrode materials

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Figure S1. COMSOL simulation results for the three scenarios. The working electrode (WE) has Poisson's ratio of $v_{WE} = 0.24$ and the elastic modulus of $E_{WE} = 100$ GPa, and LLZO is used as the solid electrolyte (SE). The magnitude of the applied stress is $|\sigma_{app}| = 50$ MPa. Panels (a), (c), and (e) show the mechanical state – $(tr(\Delta \sigma_{WE})/3 + \epsilon'_{WE}: \Delta \sigma'_{WE})$ across an evaluation plane that contributes to the equilibrium potential ΔU for scenarios I, II, and III, respectively. The evaluation plane is placed above the WE/SE interface, where the *z*-direction displacement between the interface and the evaluation plane is 0.05% of the WE height. Panels (b), (d), and (f) show the histograms of – $(tr(\Delta \sigma_{WE})/3 + \epsilon'_{WE}: \Delta \sigma'_{WE})$ corresponding to the panels (a), (c), and (e), respectively. The bin width is 20 MPa in all three cases.