

Operando Electrochemical Phase Engineering Platform for Nanocomposite Thin Films

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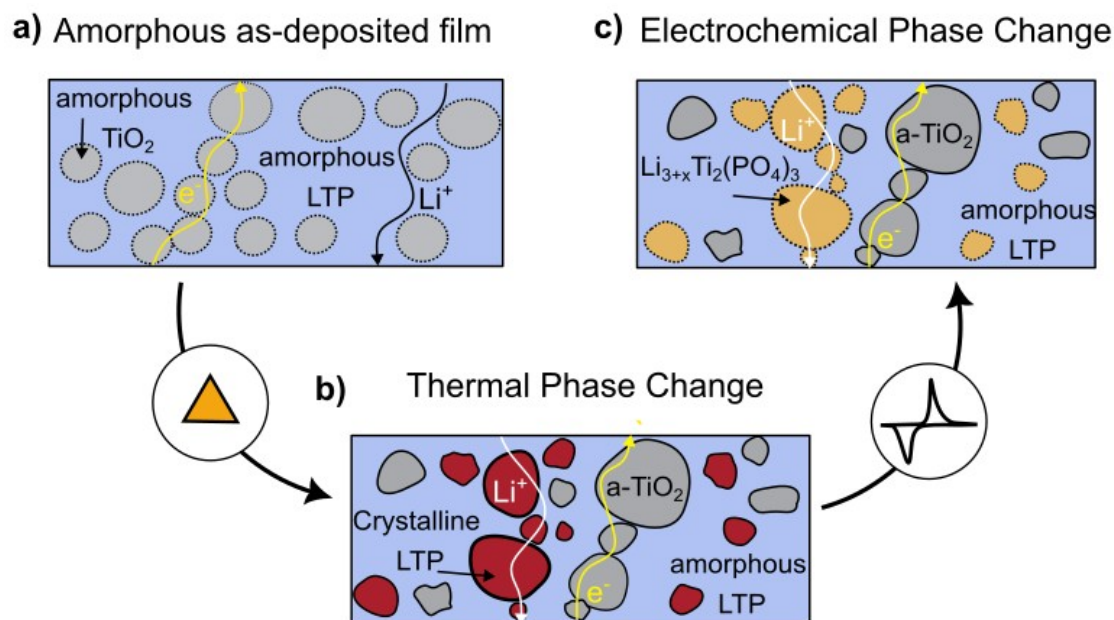


Figure 1. Progression of phase engineering of Li-Ti-P-O nanocomposite (60 nm thick) from a) ALD deposition with amorphous morphology containing TiO_2 domains in a Li-Ti-P-O matrix as determined by X-ray photoelectron spectroscopy and electrochemical impedance spectroscopy to b) thermal annealing to grow nanocrystalline LTP and anatase TiO_2 grains embedded in a Li-Ti-P-O amorphous matrix and finally c) electrochemical phase engineering where cycling below 1 V vs Li^+/Li induces vitrification of the crystalline LTP due to overlithiation.