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Sommario/riassunto	Most storage materials exhibit phase changes, which cause stresses and, thus, lead to damage of the electrode particles. In this work, a phase-field model for the cathode material NaxFePO4 of Na-ion batteries is studied to understand phase changes and stress evolution. Furthermore, we study the particle size and SOC dependent miscibility gap of the nanoscale insertion materials. Finally, we introduce the nonlocal species concentration theory, and show how the nonlocality influences the results.