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Sommario/riassunto	Fracture of storage particles is considered to be one of the major reasons for capacity fade and increasing power loss in Li-ion batteries. In this work, we tackle the problem by merging a coupled model of mechanical stress and diffusion of Li-ions with a phase field description of an evolving crack. The novel approach allows us to study the evolution of the Li concentration together with the initiation and growth of a crack in an arbitrary geometry and without presuming a specific crack path.