

Abstract

Volume change of next generation type of batteries

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Next generation batteries involve materials with new requirements on material processing, electrode layout and cycling conditions. In all-solid-state and Li-S batteries lithium metal is targeted to be applied as anode due to its very high theoretical capacity of 3860 mAh/g. But also pure silicon is a very promising anode material due to its high theoretical capacity of >3000 mAh/g. Both materials exhibit volume expansion with increasing state of charge. This may lead to a drastic volume change on cell level. Thus, understanding mechanical properties and monitoring volume variations in dependence of the cells state of charge and state of health is crucial for developing and applying those cell chemistries. This presentation will present volume change results detected and monitored on pouchcells for Si and Li based next generation type of batteries.