Characterizing electrode materials and interfaces in solid-state batteries

What is a solid-solid electrode-electrolyte interface?
Marcos Lucero and Shen Qiu contributed equally to this study. The solid-solid electrode-electrolyte interface represents an important component in solid-state batteries(SSBs),as ionic diffusion,reaction,transformation,and restructuring could all take place.

How important is electrode characterization in SSB development?
Overall,the characterization of electrode materials and their interfaces has been a criticalaspect of SSB development over the past decade.

Are SSB electrodes and interfaces based on image-based characterization?
Considering image-based characterization of SSBs, there have been numerous important in situand operandostudies that have revealed electrode and interface behavior at the microscale, including X-ray imaging and optical microscopy.

What is a non-ideal contact at the electrode/solid electrolyte interface?
(American Chemical Society) A non-ideal contact at the electrode/solid electrolyte interface of a solid-state battery arising due to pores (voids) or inclusions results in a geometric constriction effectthat severely deteriorates the elec. transport properties of the battery cell.

What is a composite electrode in a lithium battery?
(Elsevier B.V.) Electrodes in high-energy all-solid-state lithium batteries are typically composites,consisting of mixts. of a Li storage material and a solid electrolyte. Ion transport in such composite electrodes plays an important role for battery performance.

Why should we study electrode-electrode interfaces in SSBs?
Therefore,study of the electrode-electrode interfaces in SSBs,particularly during battery operation,is critical to understanding the formation,reaction,and transformation of any interphase,thus providing insights for tuning of each component and improving the performance of SSBs.

The solid-solid electrode-electrolyte interface represents an important component in solid-state batteries (SSBs), as ionic diffusion, reaction, transformation, and restructuring could all take place. As these processes ...

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