FOXSI
Functional Oxide Surfaces and Interfaces

EINLADUNG

zum Vortrag
von

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Grain boundaries in solid electrolytes: An open circuit or a short circuit?

am

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1060 Wien, Getreidemarkt 9

Abstract:

Physical nature of a grain boundary differs from that of the bulk because its structure deviates from the crystal interior. With the hypothesis that a grain boundary may serve as a highly conductive path (a short-circuit), nanocrystalline solid electrolytes (SEs) have been of particular interest over the past decade because of the higher density of the grain boundary in such materials. However, it has been reported numerous times in literature that the grain boundaries in the SEs often limit the internal ionic current (an open circuit). On the other hand, we have recently discovered that some nanocrystalline SEs present substantially enhanced conductivity under wet atmosphere. In this presentation, electrical nature of the grain boundaries in the SEs will be discussed. Based upon such a fundamental understanding of the electrical property of the grain boundaries, the concept of grain-boundary engineering in nanoionics will also be discussed.

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