

Ionic and Electronic Charge Carriers in Solids: Implications for Energy Conversion and Storage

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Solid State Ionics provides the basis for a deeper understanding of electrochemical energy storage and applications such as batteries and fuel cells [1]. This is due to the fundamental role of ionic and electronic point defects as relevant charge carriers and reactive centers. It is shown how and by which adjusting screws their contributions can be tuned. Of special relevance is the situation at interfaces (“nano-ionics”). Here redistribution phenomena occur that are paramount for the understanding of transport, transfer and storage. The significance of these considerations exceeds the realm of electrochemical applications [2,3]. Their relevance for fields such as heterogeneous catalysis, solid state reactions, semi- and superconductor science has been explored in recent works. As an example of current interest, “photo-perovskites” are addressed [4].

References

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