

Workshop »Coatings for Energy Technologies«

Development of solid-state batteries by plasma-assisted thin-film technologies

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Oxide-based solid-state batteries use a solid glass or ceramic material as ion-conductor instead of a liquid electrolyte. In general, they allow high battery cell voltages of more than 5 V and benefit from high thermal stability, less toxicity and non-flammability. They still need to catch up with today's high performance of their counterparts with liquid electrolyte. Advances of electrode and electrolyte materials as well as optimal material combinations are an absolute must for achieving the full potential of solid-state battery cells. This presentation shows examples how plasma-assisted thin-film technology helps in solving material compatibility issues and in finding novel materials by so-called material libraries that may be used for later artificial intelligence (AI) approaches.