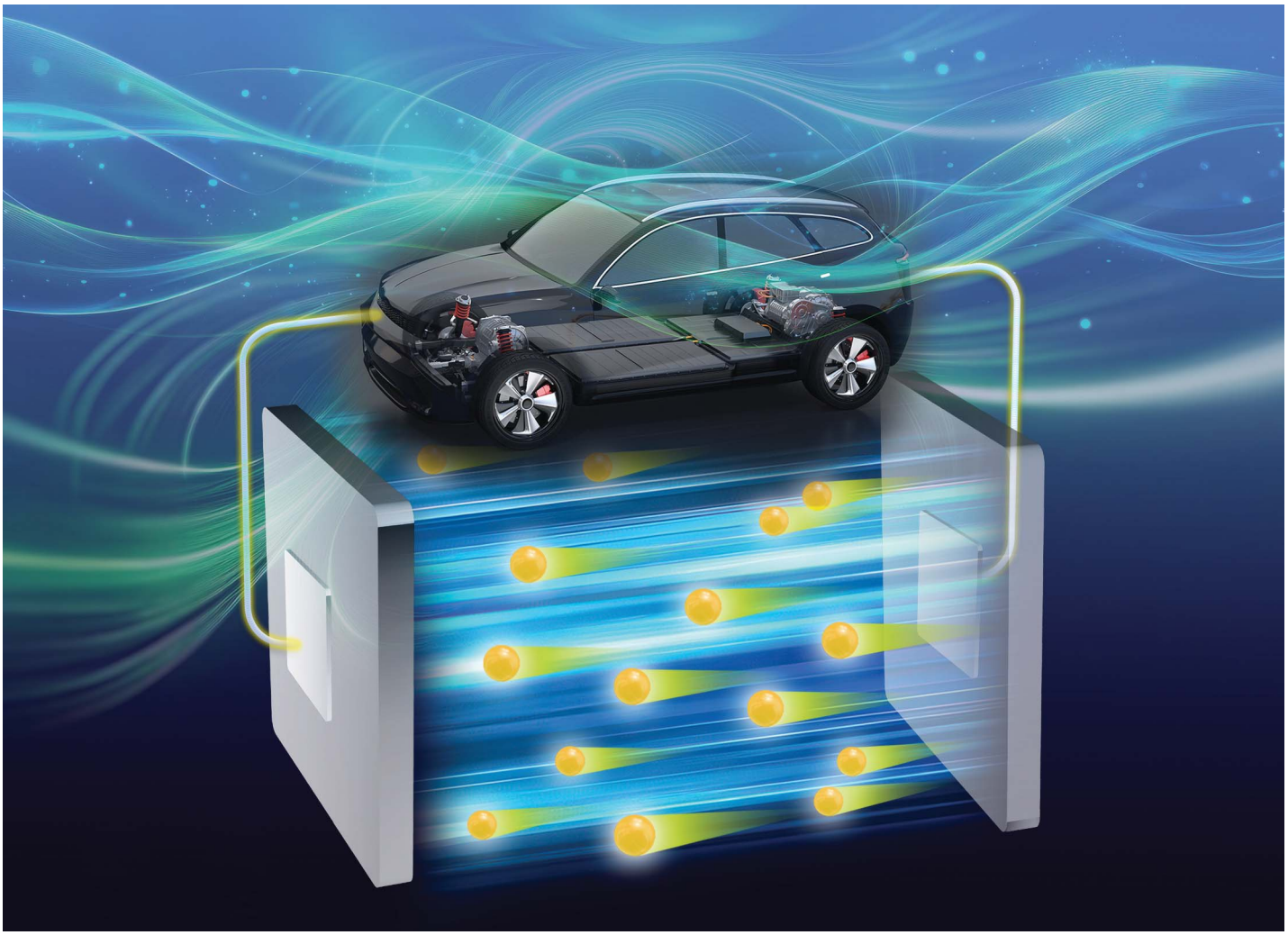


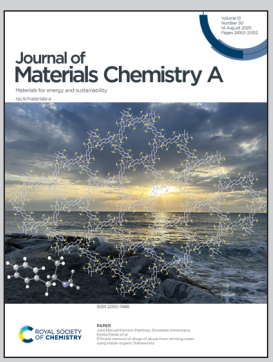
Showcasing research from Dr. Ji-young Ock from Oak Ridge National Laboratory, Prof. Zhezhen Fu from Pennsylvania State University-Harrisburg, and Dr. Xi Chelsea Chen from Oak Ridge National Laboratory, USA.

A single-ion-conducting polymer and high-entropy Li-garnet composite electrolyte with simultaneous enhancement in ion transport and mechanical properties

A high performance composite electrolyte was developed by incorporating high-entropy Li-garnet ($Li_7La_3Zr_{0.5}Nb_{0.5}Ta_{0.5}Hf_{0.5}O_{12}$) into a vinyl ethylene carbonate based single-ion-conducting polymer via in-situ polymerization. This combination enables simultaneous enhancement in ionic conductivity and storage modulus, effectively suppressing lithium dendrite growth and ensuring prolonged cycling stability in Li symmetric cells.

Image reproduced by permission of Ji-young Ock and Xi Chelsea Chen from *J. Mater. Chem. A*, 2025, **13**, 24511.

As featured in:



See Ji-young Ock, Zhezhen Fu, Xi Chelsea Chen *et al.*, *J. Mater. Chem. A*, 2025, **13**, 24511.

ROYAL SOCIETY OF CHEMISTRY

rsc.li/materials-a

Registered charity number: 207890