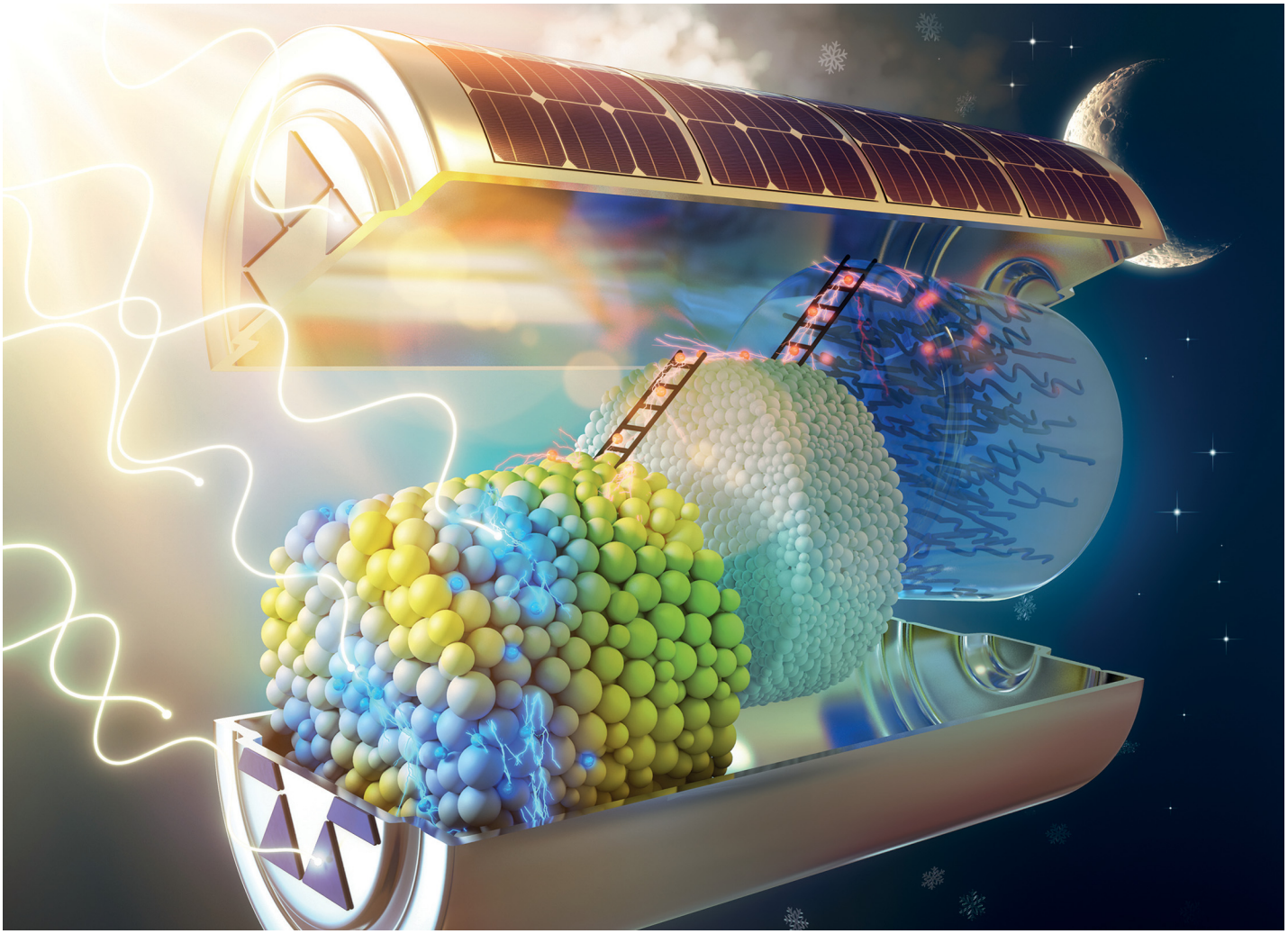

Showcasing research from Professor Bettina V. Lotsch's department, Max Planck Institute for Solid State Research, Stuttgart, Germany.

An integrated solar battery based on a charge storing 2D carbon nitride

We present an integrated solar battery based on an optoionic, bifunctional carbon nitride (K-PHI) photoanode, a polymeric hole transporter and a hole-storage organic cathode material for discharge on demand. The ladder-type internal charge transfer enables wireless light-only or light-assisted charging, while the device can also be operated as a normal battery. Simultaneous solar energy conversion and storage in a single device increases battery round-trip efficiency by 94%. We acknowledge V. Hiendl @ e-conversion for the cover art.

As featured in:

See F. Podjaski, B. V. Lotsch *et al.*, *Energy Environ. Sci.*, 2023, **16**, 1520.

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