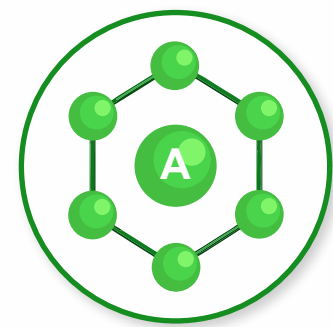


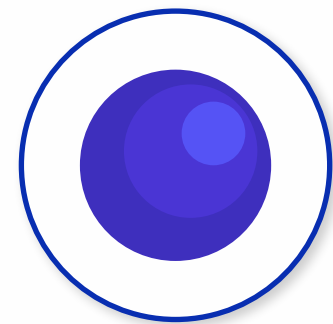
Materials Innovation Driving the Perovskite Solar Cell Revolution

Materials Innovation



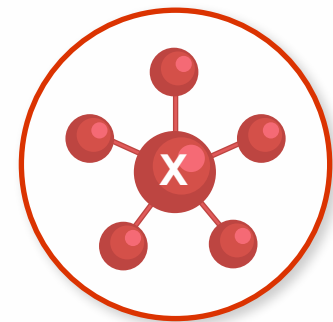
Mixed-Cation Engineering

Stabilize lattice, tune bandgap, improve efficiency



Tin-Based Alternatives

Progress toward low-toxicity perovskites (16.65% certified PCE)



Defect Passivation

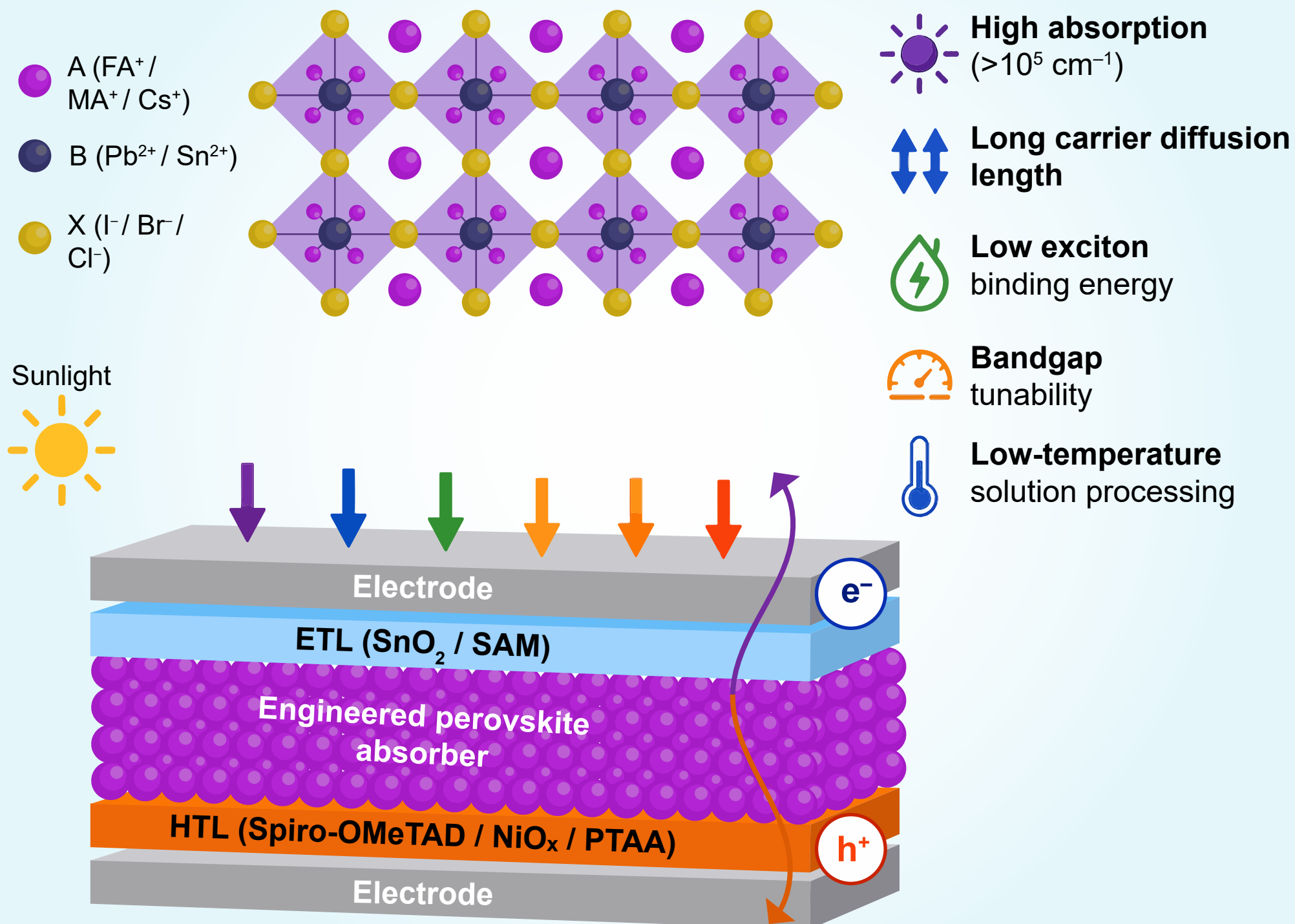
Suppress defects & ion migration, reduce recombination



Interface Engineering

Optimized interfaces for efficient charge extraction & minimal losses

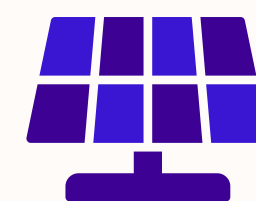
Perovskite: A Tunable Platform For High-Efficiency Solar Cells



Power Conversion Efficiency



27.0%
Single-junction



>34.9%
Perovskite / silicon tandem

Key Results



Enhanced Stability

Greater resistance to moisture, heat, light and electric-field



High Performance Achieved

Single-junction: 27.0%
Perovskite / silicon tandems: 34.9%



From Efficiency to Durability

Shift toward long-term operational stability and reliability



Manufacturing Readiness

Solution-processed materials and interfaces for scalable production



Sustainable Future

Lead management, recycling and responsible PV ecosystem

Materials innovation is enabling efficient, stable, and scalable perovskite solar cells for next-generation photovoltaics