

Power Electronics for the Next Generation of PV

Perovskite-based products will require a new generation of MPPT algorithms and power electronics.

4-Terminal Perovskite Tandems Require Optimizers for Maximum Performance, Especially Bifacials.

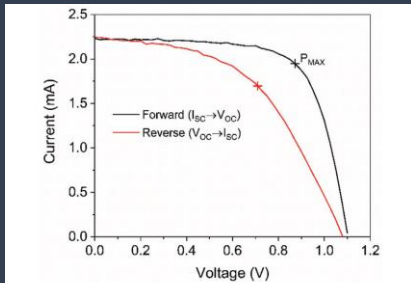


Figure 1. Fast I - V curves of a perovskite solar cell scanned in forward and reverse directions with the same scan rate of 200 mV s^{-1} . The cross markers indicate the P_{MAX} extracted from the I - V curves, respectively.

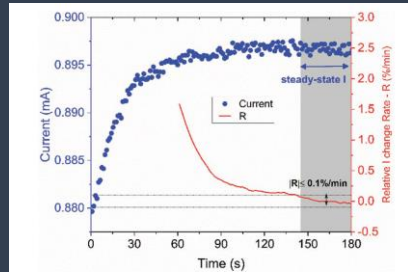


Figure 8. Current and its change rate R (with a fitting time window of 60 s) versus time for a perovskite cell at a fixed voltage. The data points in the gray region meet the stabilization criteria defined above and are averaged to represent the steady-state current I .

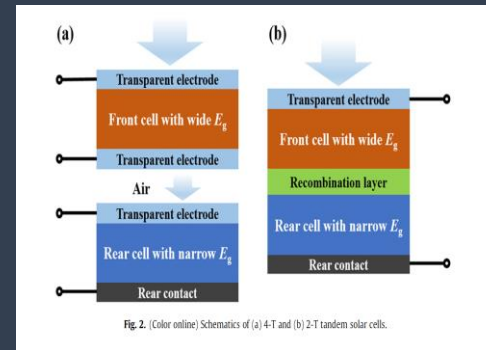
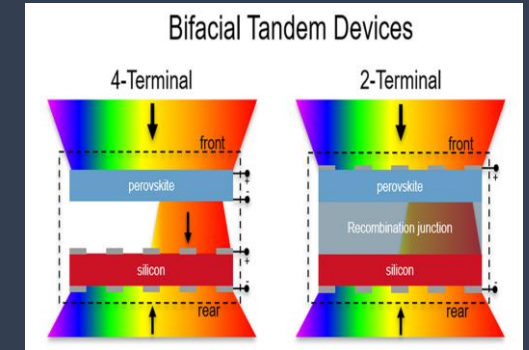


Fig. 2. (Color online) Schematics of (a) 4-T and (b) 2-T tandem solar cells.



Through our work with the Sandia/NREL PACT center CFV is already building Perovskite specific power electronics to characterize small test samples. We plan to leverage this work and our commercial contacts to produce optimizers with custom MPPT algorithms for Perovskites, Tandems and other next generation PV technologies.

