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Supporting information

Soft Interfaces within Hybrid Perovskite Solar Cells: Real-time Dynamical Tracking of Interfacial Electrical Property Evolution by EIS

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Fig. S1. (a) Schematic diagram of our planar PSCs. (b) *J*–*V* curves of the champion cells.



Fig. S2. (a-c) Schematic illustrations and Nyquist plots of different non-perovskite architectures under 0.1 V bias



Fig. S3. (a-f) The extracted parameters from EIS fitting results as a function of direct current, the corresponding interfacial resistance R_1 (a), transport resistance of perovskite R_2 (b), interfacial resistance C_s (c), and dielectric capacitance C_g (d), respectively. Arrows indicate the measuring time under a constant bias.



Fig. S4. Representation of low frequency relaxation time corresponding to repeatedly tests.



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Fig. S5. (a-f) The extracted parameters from EIS fitting results as a function of direct current, the corresponding interfacial resistance R_1 (a), transport resistance of perovskite R_2 (b), interfacial resistance C_s (c), and dielectric capacitance C_g (d), respectively. The blue lines stand for the EIS test under bias while the red lines represent the recovery process with no bias. Arrows indicate the measuring time under a constant bias.



Fig. S6. Representation of low frequency relaxation time. The blue lines stand for the EIS tests under bias while the red lines represent the recovery process where the bias is removed.



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Fig. S7. (a-d) Nyquist plots of different PSCs measured repeatedly under 0.6 V and the recovery process in dark condition. The green lines stand for the EIS test under bias while the orange lines represent the recovery process where the bias is removed. Arrows indicate the measuring time under a constant bias.