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Supplementary Information
Perovskite Single Crystal SCLC Measurements Prediction Using Machine Learning Model

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SCLC measurements:

We have calculated the Resistivity and Conductivity of devices by applying Ohm's Law (eq. 1) to I-V curves, which has been measured using the solar simulator and Keithley 2400.

$V = IR$ ..... (1) Resistance has been calculated by fitting the I-V curve of SCLC data, following the steps below.

$$R = \frac{V}{I}$$

Dividing the area (A) in the above equation.

$$\frac{IR}{A} = \frac{V}{A}$$

$$JR = \frac{V}{A}$$

$$\log J + \log R = \log V - \log A$$

$\log J = \log V - \log A - \log R$ $\log J = \log V - (\log A + \log R)$ ..... (2)

Which is in the form of

$y = mx + c$ Resistance (R) has been calculated by considering the intercept of *log J vs log V* of SCLC data. Subsequently, compared both equations and calculated the R-value followed by resistivity (ρ) by adding resulted R values in the below equation.

$$R = \rho \frac{d}{A}$$

$$\rho = R\frac{A}{d} \quad \text{.....(3)}$$

d is the thickness of the device, ρ is resistivity, and A is the area.

Conductivity (σ) is the reciprocal of resistivity (ρ).

$$\sigma = \frac{1}{\rho} \quad \text{.....(4)}$$