Electronic Supplementary Material (ESI) for Faraday Discussions.

GeSe photovoltaics: doping, interfacial layer and devices - Supplementary Information

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Pinholes

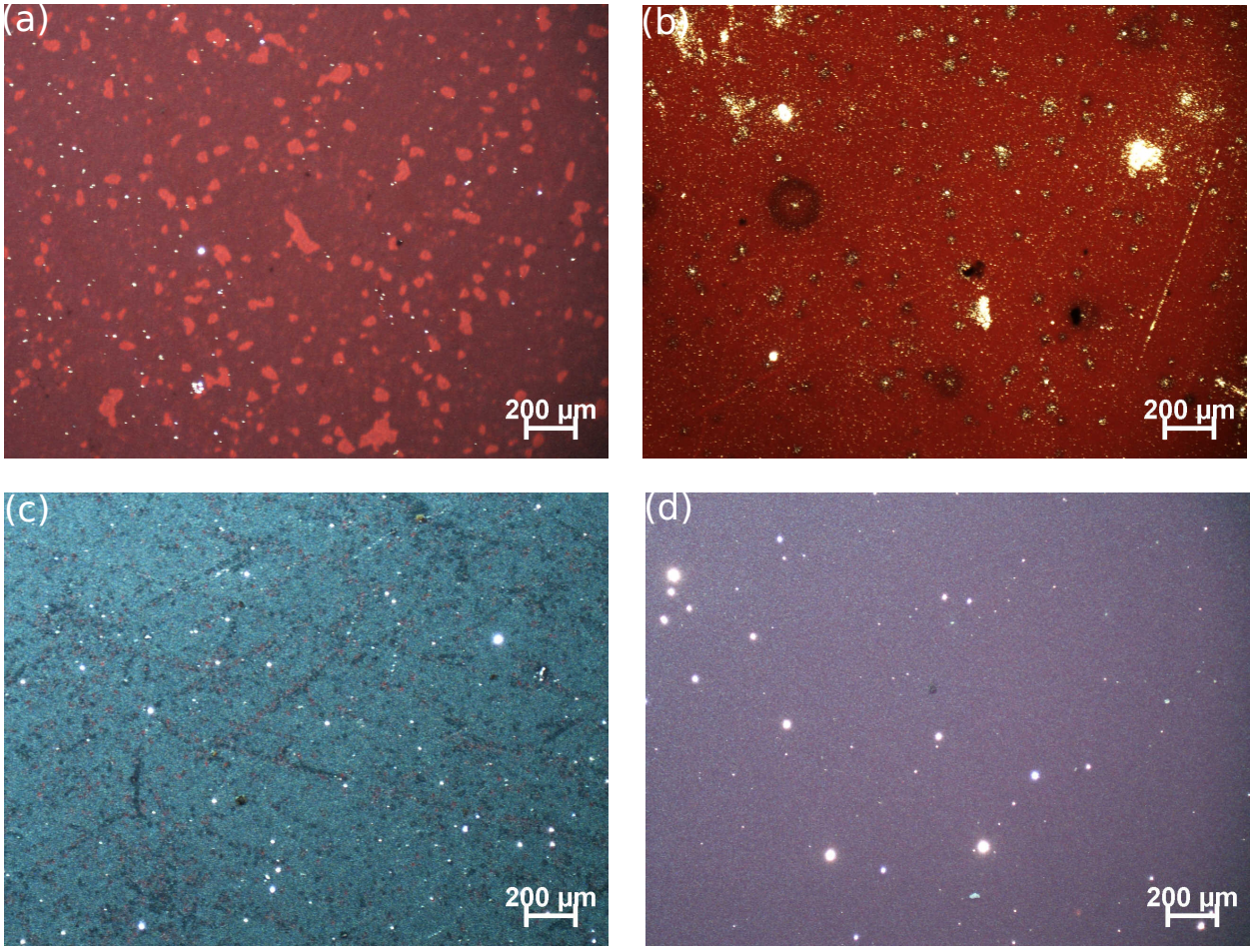

Figure S1: Backlit optical microscope images of devices (a) FTO/CdS/Ag:GeSe (b) FTO/CdS/u:GeSe (c) FTO/CdS/Sb_2Se_3/Ag:GeSe (d) FTO/CdS/Sb_2Se_3/u:GeSe. White spots show pinholes which are blocked from shorting the devices using spin-coated P3HT.

Lattice parameter calculations by XRD

Table S1: XRD peak position of the undoped and Ag-doped GeSe which were used to calculate the lattice parameters using the method below.

Sample	400 (°)	201 (°)	111 (°)
Undoped	38.59	30.45	37.42
Ag-doped	38.45	30.19	37.18

The lattice parameters could then be calculated by:

1. The peak positions were converted from degrees to radians.

2. The d-spacing for each was calculated using the equation:

$$d = \frac{n\lambda}{2\sin\theta} \tag{1}$$

where n=1, λ is 1.79×10^{-10} and θ is the peak positions in radians.

3. The three different d-spaces were found by solving the following equations simultaneously for the d-spacing for the three reflections:

$$\frac{1}{d^2} = \frac{h^2}{a^2} + \frac{k^2}{b^2} + \frac{l^2}{c^2} \tag{2}$$

where d is the d-spacing for each (hkl) reflection.

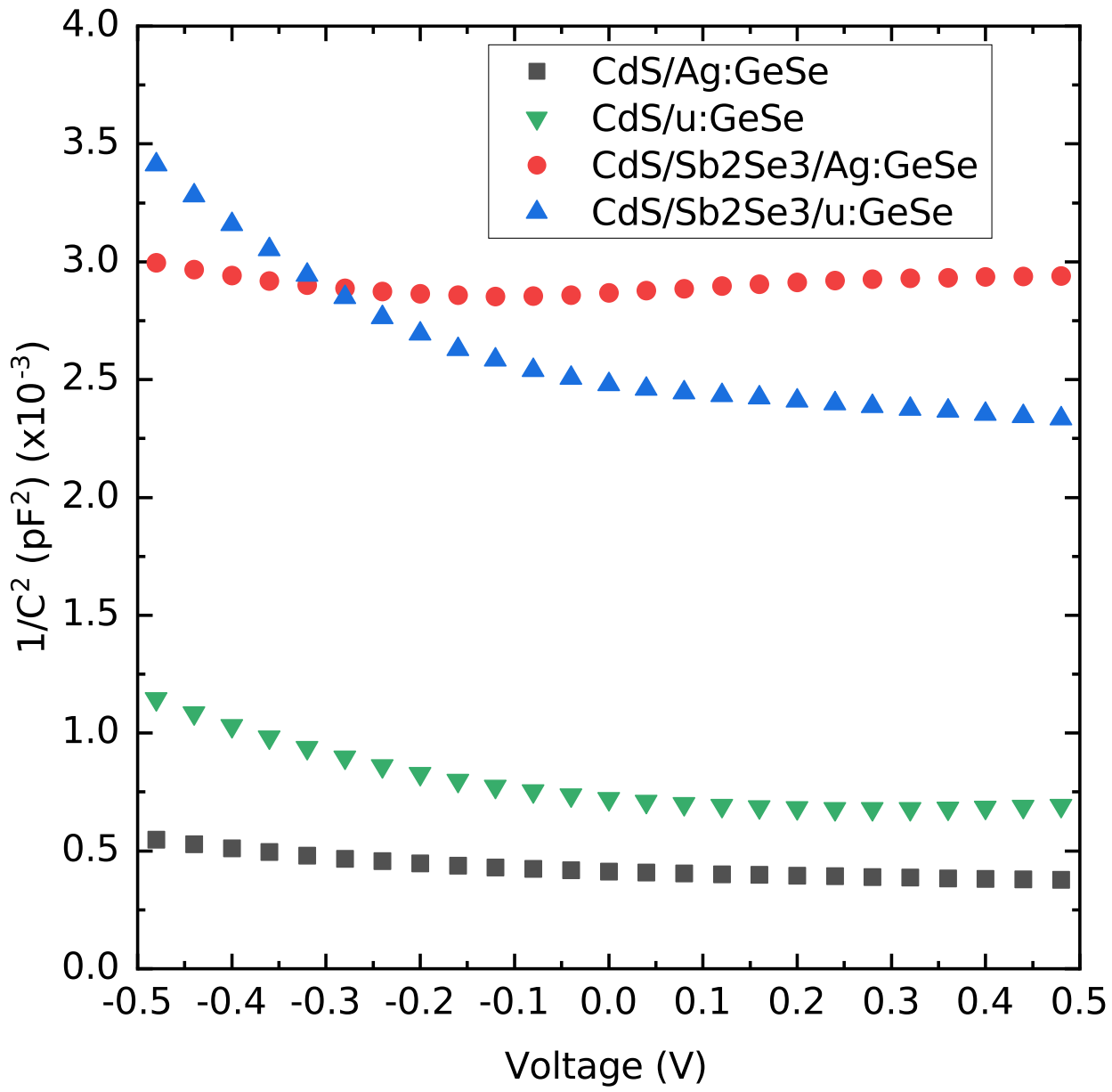

Figure S2: Capacitance voltage measurements for all four champion contacts.