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Exceeding 20% efficiency with in situ group V doping in polycrystalline CdTe solar cells

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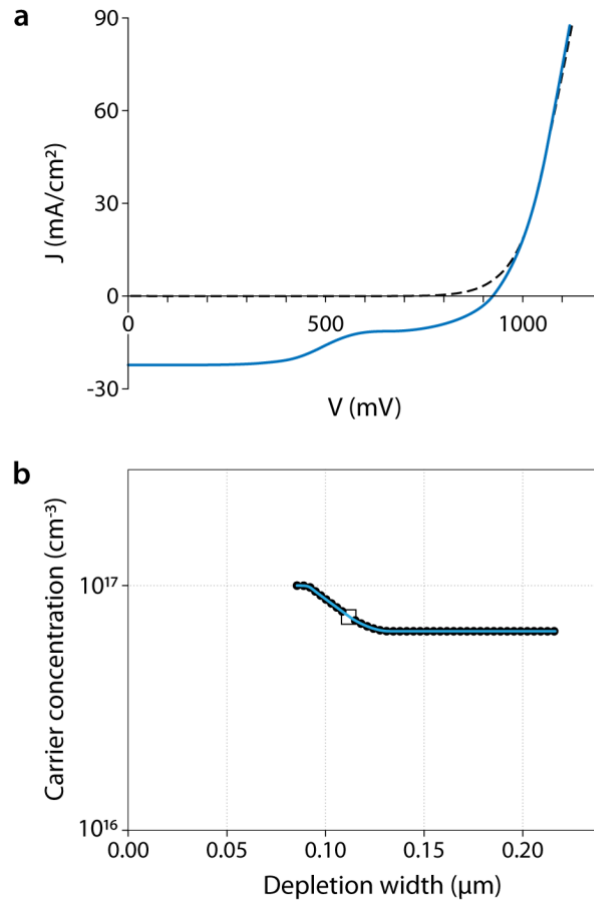
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Supplementary Information

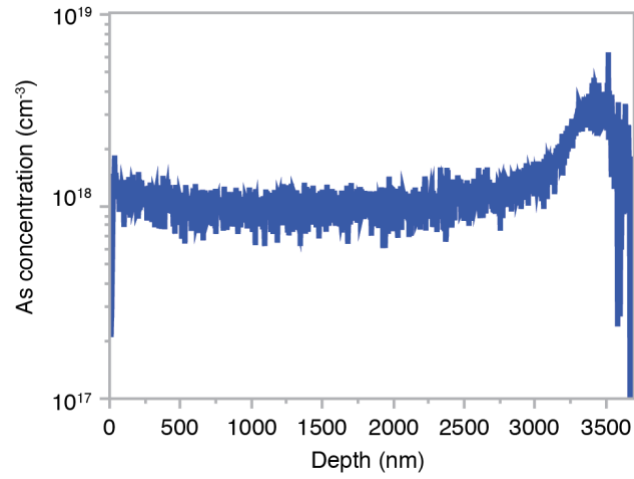
Exceeding 20% Efficiency with *In-Situ* Group-V Doping in Polycrystalline CdTe Solar Cells

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Supplementary Information



Supplementary Figure 1. Characterization of a copper-free polycrystalline MgZnO/CdTe:As solar cell. **a**, Current-density as a function of applied voltage indicates a V_{oc} of 921 mV. The anomalous shape is attributed to the MgZnO layer. **b**, Corresponding carrier concentration and depletion width determined by capacitance-voltage measurements.



Supplementary Figure 2. Arsenic depth profiling. The As atomic incorporation corresponding to the device described in Fig. 3, and characteristic of samples with hole density in the low-10¹⁶ cm⁻³ range. The depth corresponds to the distance from the back of the absorber layer.