Supporting Information For

Solution-Synthesized High-Mobility Tellurium Nanoflakes for Short-Wave Infrared Photodetectors

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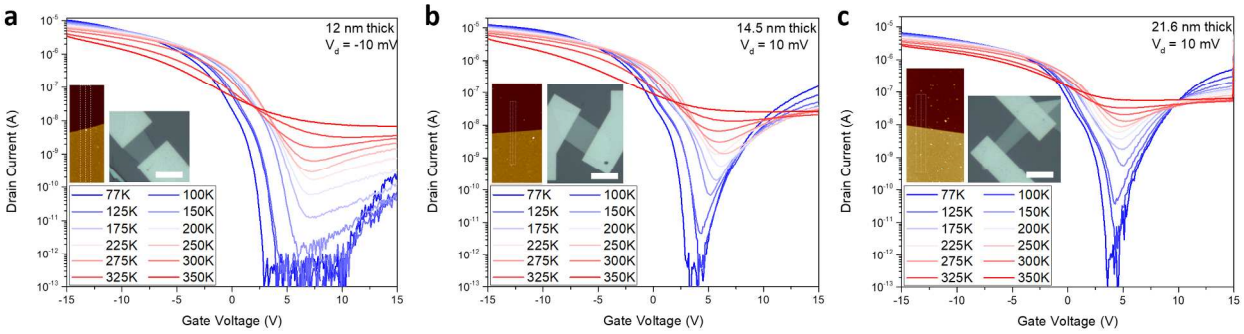

Figure S1. (a) Temperature-dependent I_d-V_g characteristics of a 12 nm thick Te nanoflake using a 50 nm thick back gate SiO_2, measured at a low V_d of -10 mV. (b) Temperature-dependent I_d-V_g characteristics of a 14.5 nm thick Te nanoflake using a 50 nm thick back gate SiO_2, measured at a low V_d of -10 mV. (c) Temperature-dependent I_d-V_g characteristics of a 21.6 nm thick Te nanoflake using a 50 nm thick back gate SiO_2, measured at a low V_d of -10 mV.

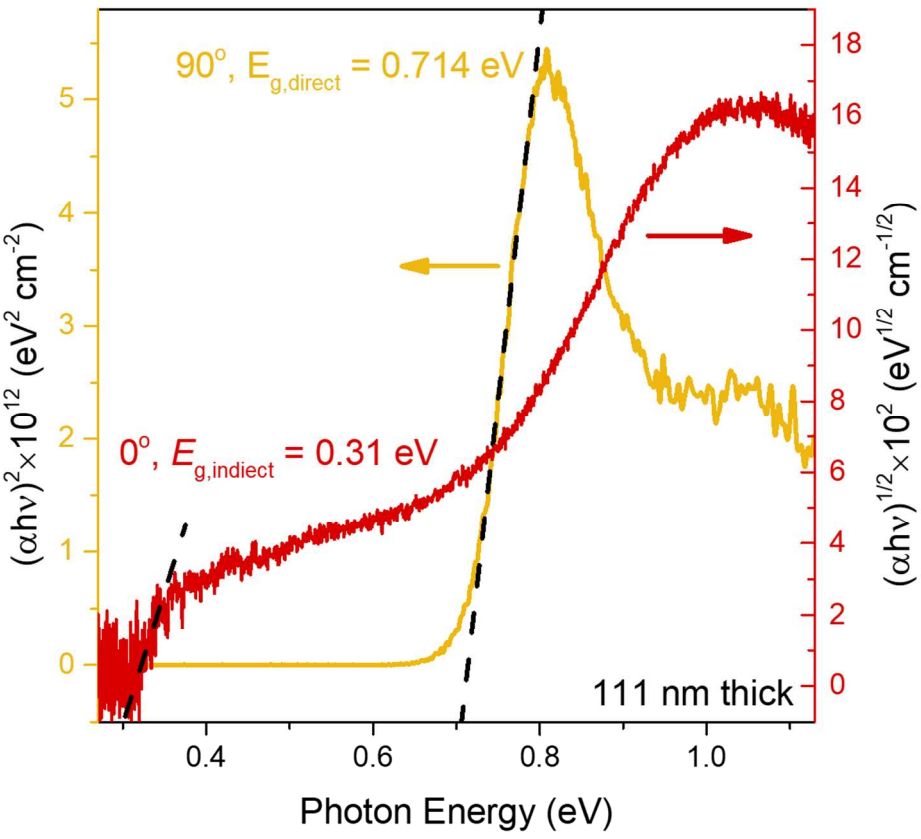

Figure S2. Tauc plots used to extract the indirect bandgap and direct bandgap of the quasi-2D nanoflakes.

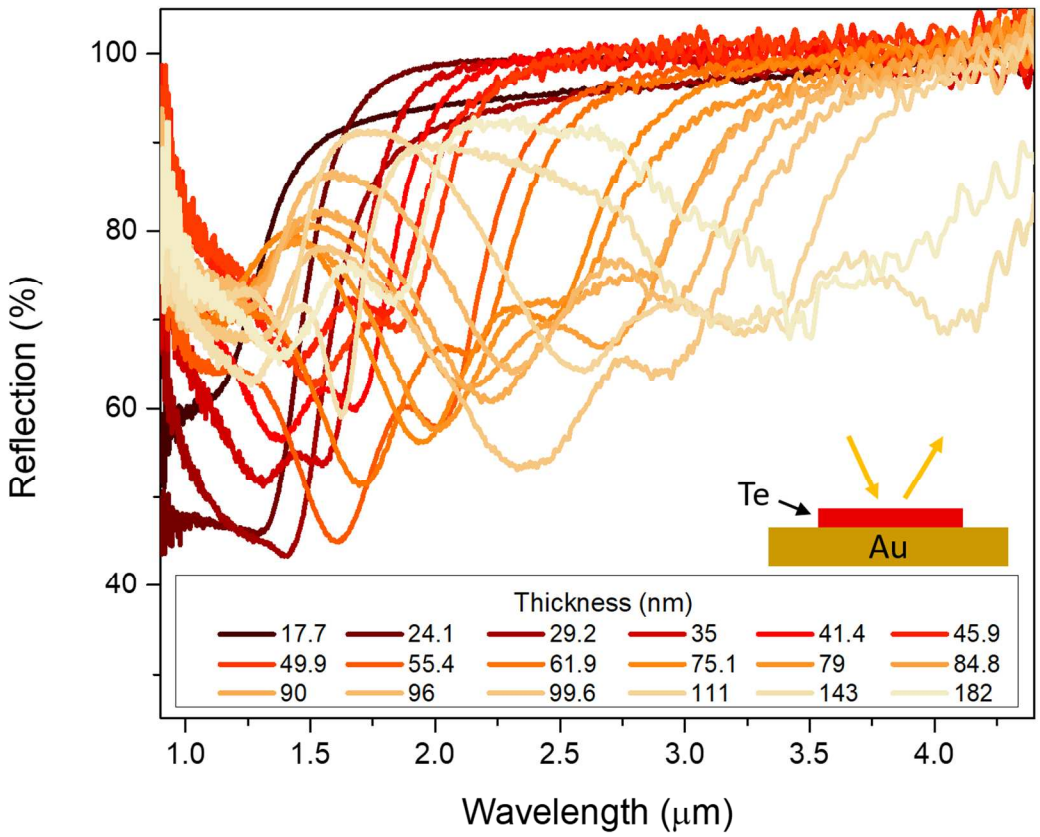

Figure S3. Reflection spectra of Te nanoflakes with different thicknesses on Au substrate. Inset shows a scheme of the optical path used in the measurement.

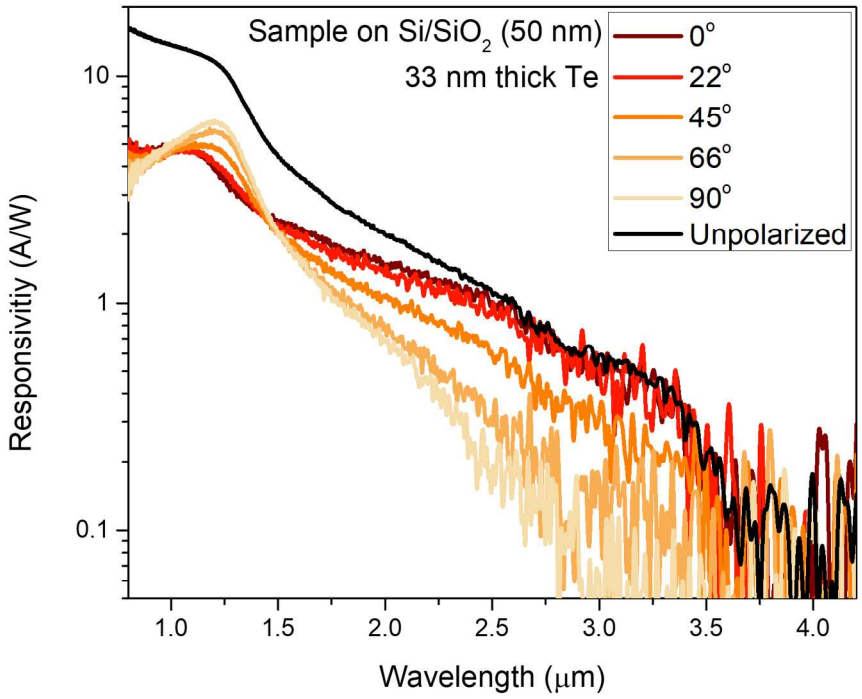

Figure S4. Polarization-resolved photoresponse of a quasi-2D Te photoconductor on a Si / 50 nm thick SiO_2 substrate. It is important to note that a thicker sample was used here to improve the measurement resolution near the indirect gap.

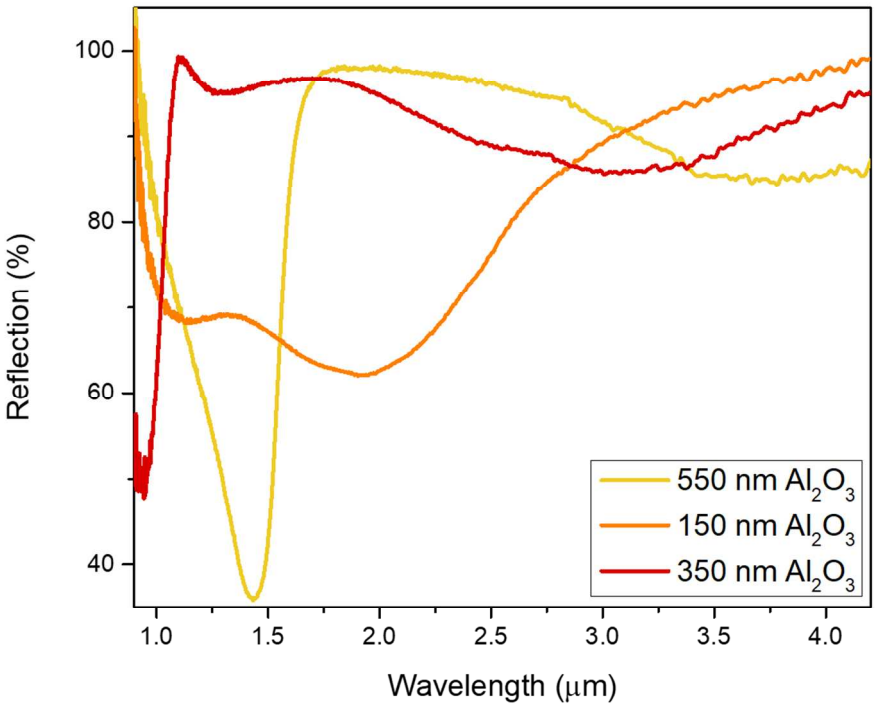

Figure S5. Reflection spectra taken on Te nanoflakes deposited on an Al_2O_3/Au substrate with varying Al_2O_3 spacer thicknesses.