

## Supplementary material

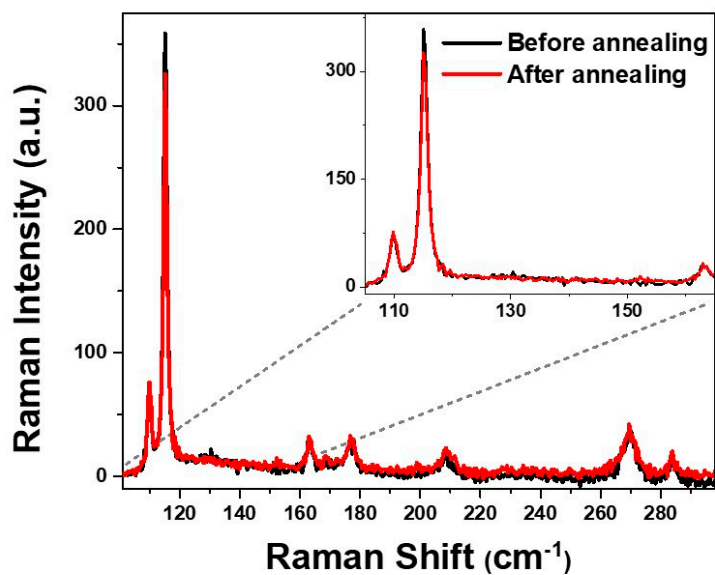


Figure S1: Effect of annealing on as-exfoliated GaTe flakes in a pure oxygen ambient at 200 °C for 30 minutes

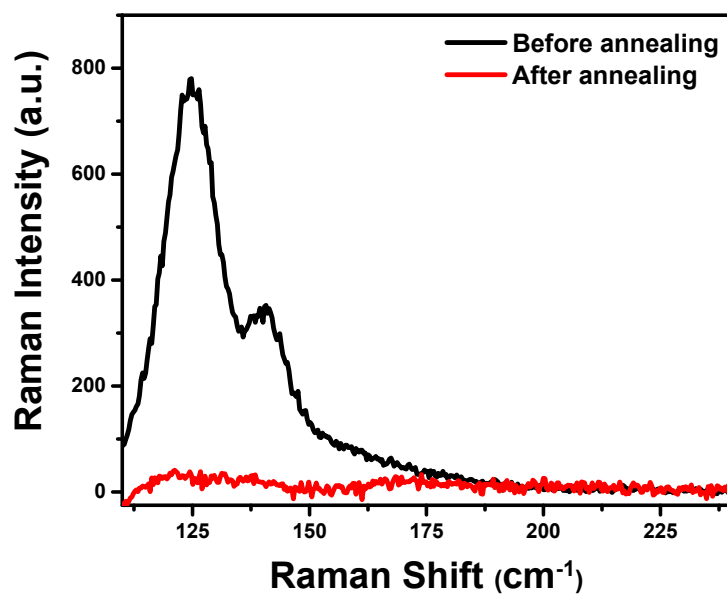
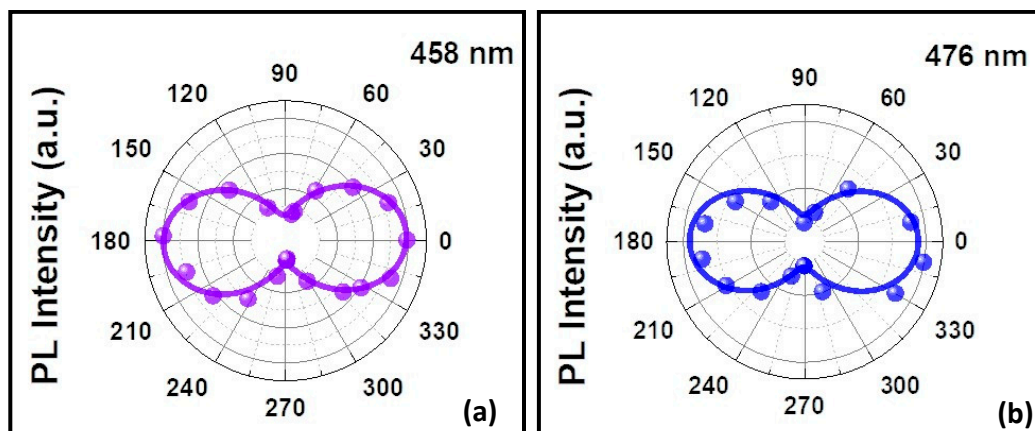


Figure S2: Effect of annealing on oxidized flakes in an argon ambient at 300 °C for 30 minutes



**Figure S3:** Polarization dependence of PL peak intensity (1.66 eV) of a 100 nm GaTe flake measured using excitation wavelength of (a) 458 nm; (b) 476 nm