Supporting material

Laser Effects on Phase Transition for Cubic Sb_2O_3 Microcrystals under High Pressure

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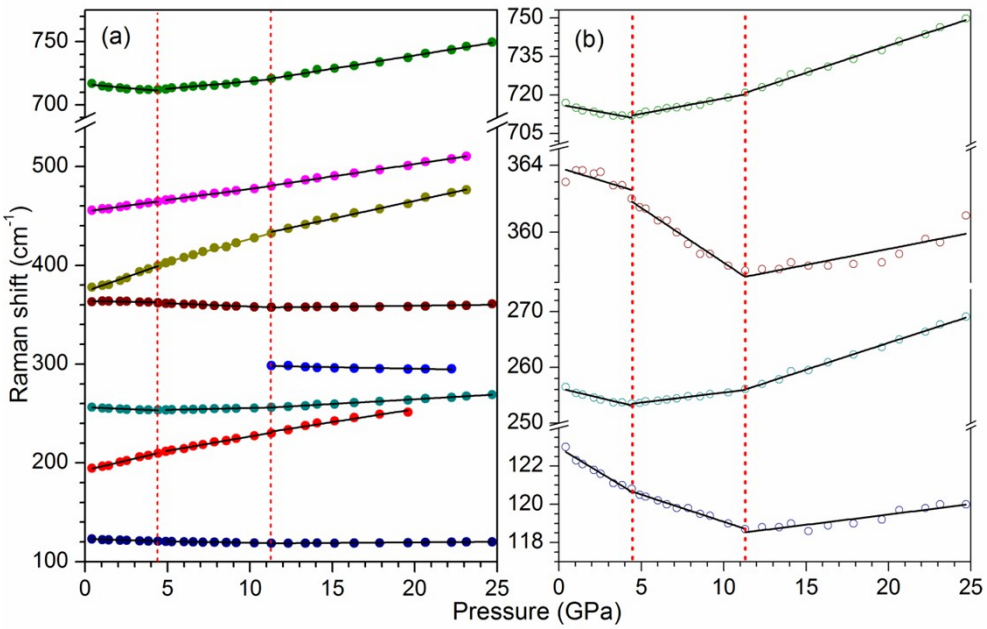
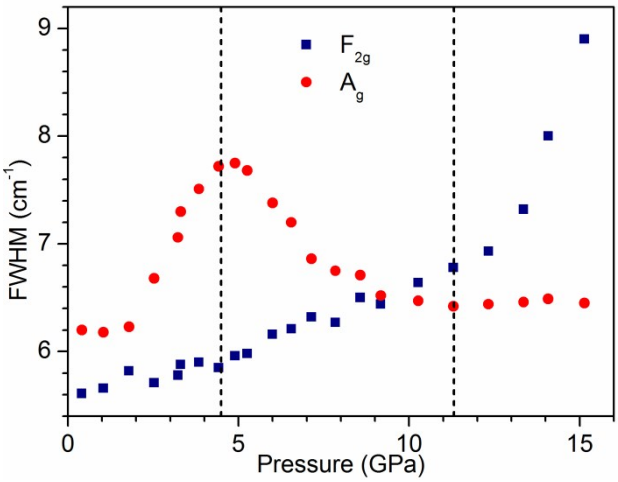
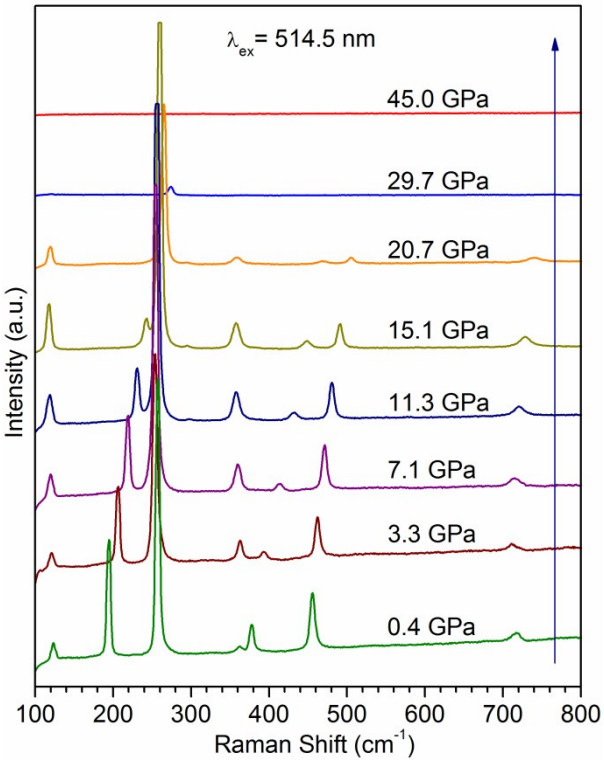


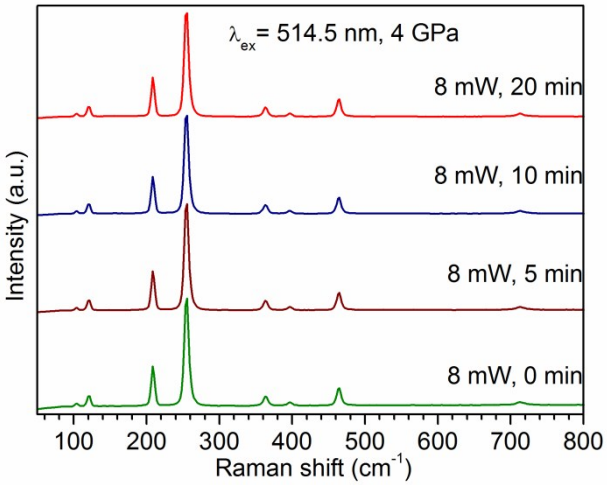
S1 Pressure dependence of the Raman modes shifts for α-Sb_2O_3 microcrystal



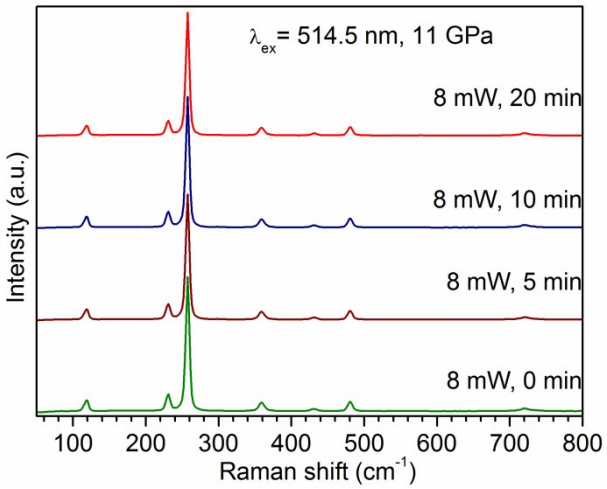
S2 FWHM of the most intense F_{2g} and A_g modes at different pressures.



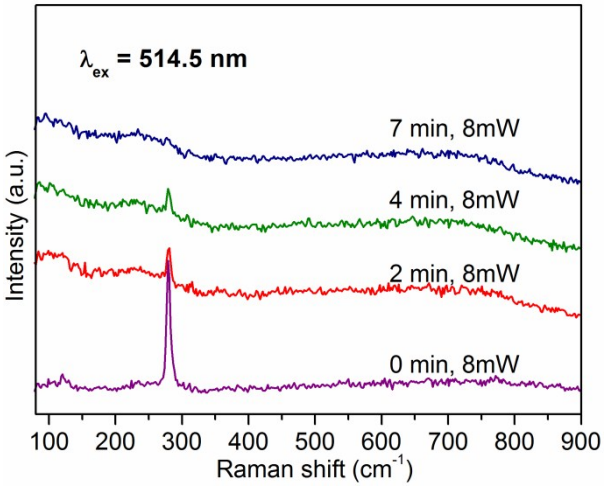
S3 Raman spectra of the α-Sb_2O_3 microcrystal in the process of loading pressure



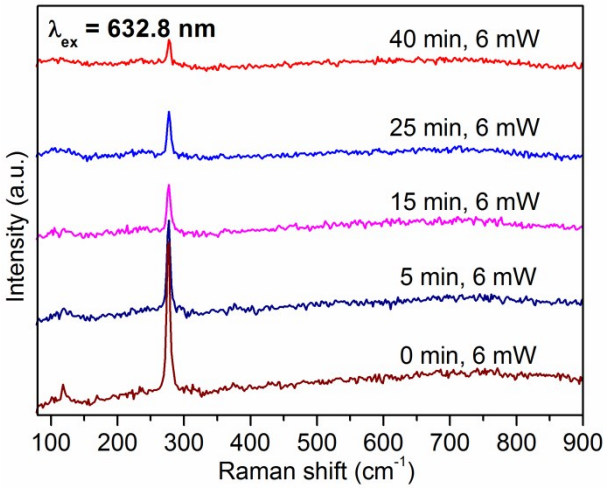
S4 Raman spectra of Sb_2O_3 sample after different irradiation time durations under 4 GPa of 514.5 nm laser.



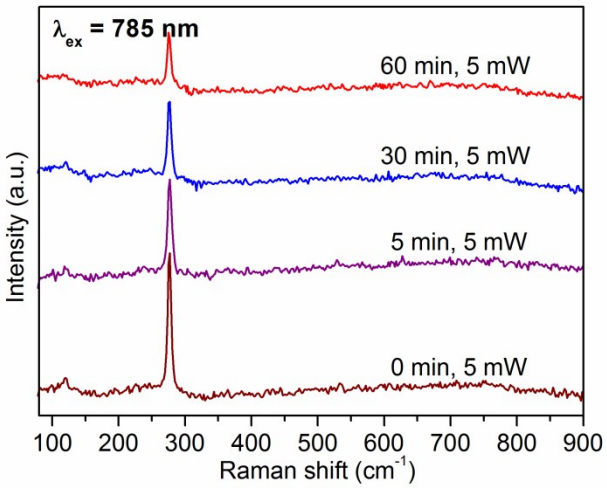
S5 Raman spectra of Sb_2O_3 sample after different irradiation time durations under 11 GPa of 514.5 nm laser.



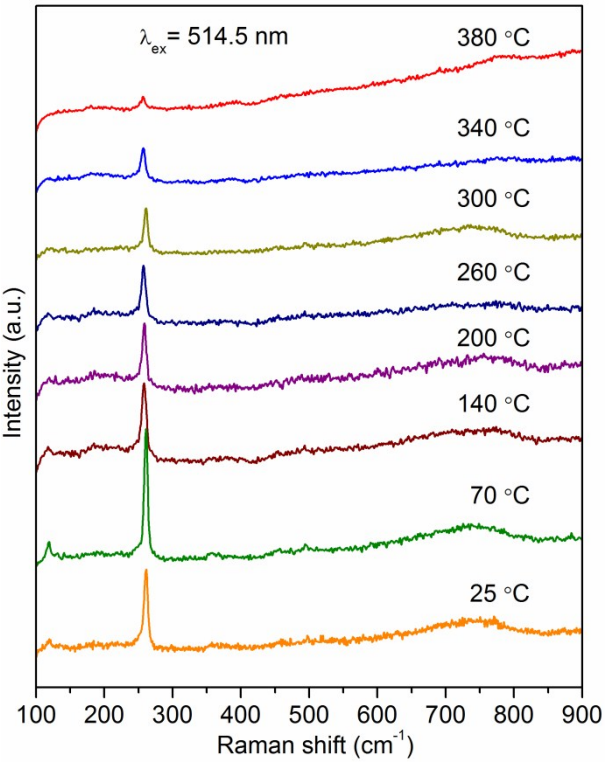
S6 Raman spectra of Sb_2O_3 sample after different irradiation time durations under 27 GPa of 514.5 nm laser.



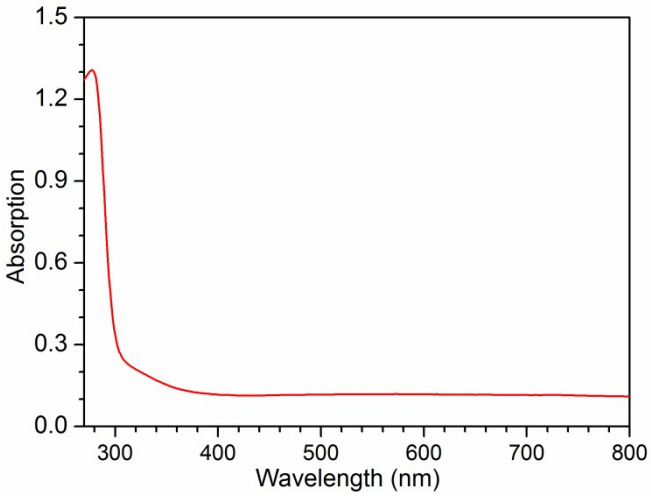
S7 Raman spectra of Sb_2O_3 sample after different irradiation time durations under 27 GPa of 632.8 nm laser.



S8 Raman spectra of Sb_2O_3 sample after different irradiation time durations under 27 GPa of 785 nm laser.



S9 Raman spectra of Sb_2O_3 sample at different temperatures under the pressure of 20 GPa. .



S10 Absorption spectrum of cubic phase Sb_2O_3 at ambient pressure.

Description of Rietveld refinement for XRD patterns：

The crystal structure of the microcrystals was further analyzed by Rietveld refinement using Materials Analysis Using Diffraction (MAUD). Refinement was performed based on cubic representation of space group $Fd\bar{3}m$. This structural model allowed us to reproduce all the observed peaks. The initial Rietveld refinement was done using zero point shift, the unit cell, and background parameters. The background was modeled using a cosine Fourier series, and the peak shapes were described by pseudo-Voigt functions. After a good match, the peak positions were achieved, and the peak profile parameters including the peak symmetry were refined.