Support information for

Temperature-dependent properties of monolayer MoS_2 annealed in Ar diluted S atmosphere: an experimental and first principles study

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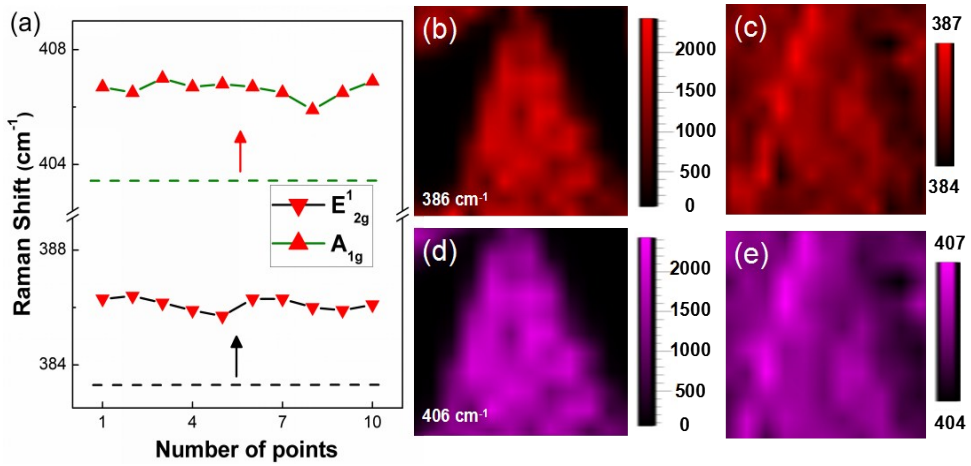

Fig. S1 (a) Raman peak positions of MoS_2 heated at 860 ℃ recorded from multi-points, dotted lines at ~383.5 cm^{-1} and ~403.4 cm^{-1} are the peak positions of the as-grown MoS_2. (b) Raman intensity at 386 cm^{-1}. (c) Corresponding Raman E^1_{2g} peak position mapping image. (d) Raman intensity at a 406 cm^{-1}. (e) Corresponding Raman A_{1g} peak position mapping image.

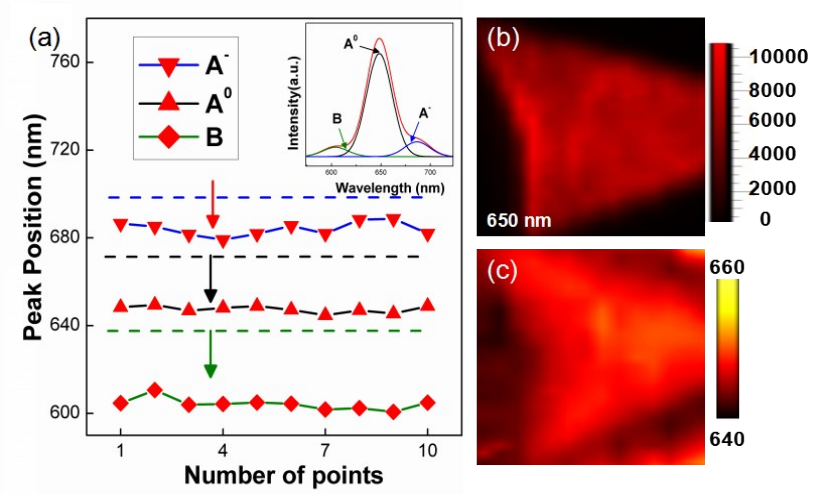

Fig. S2 (a) PL peak positions of muti-points from the sample heated at 860 ℃, dotted lines (A^- at ~700 nm, A^0 at ~673 nm, and B at ~640 nm) are the peak positions of the as-grown MoS_2. (b) PL intensity at 650 nm. (c) The PL A^0 peak position mapping of the sample.