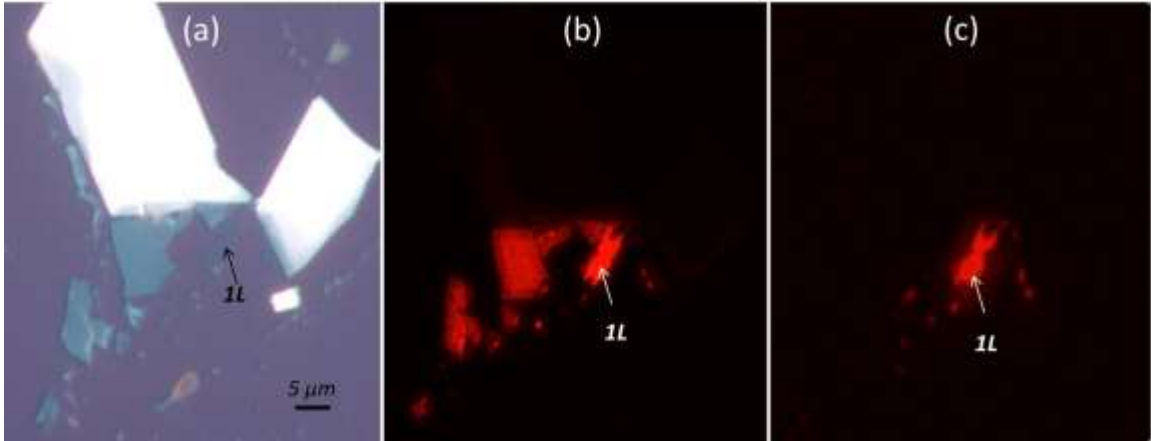


## Supplementary Information

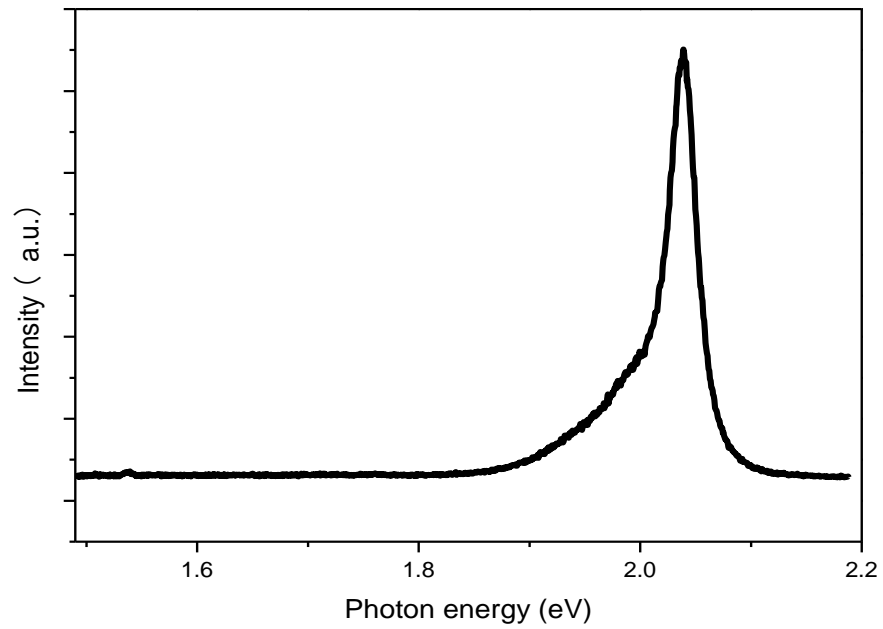
# Exciton Binding Energy of Monolayer WS<sub>2</sub>

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**Figure S1.** (a) Optical micro-view of WS<sub>2</sub> flakes with a scale bar of 5 μm and the monolayer flake marked for clarity. (b) Image of second harmonic generation (SHG) shows strongest intensity from the monolayer flake compared to other odd layers, consistent with Ref[1]. (c) Mapping of two-photon photoluminescence (TP-PL) indicates only single layer WS<sub>2</sub> has an observable intensity due to its higher quantum efficiency at same condition.



**Figure S2.** Photoluminescence spectra from monolayer WS<sub>2</sub> excited by 532nm of 1 $\mu$ W and no indirect emission peak found below A exciton, consistent with the nature of direct gap of monolayers. The asymmetric line profile gives a hint of the existence of trion.

### Reference

S1. H. Zeng et al., Sci. Rep. 3 (2013)