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Supplementary Material

Spectroscopic studies of CVD-grown monolayer, bilayer, and ribbon structures of WSe₂ flakes

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S1. The Schematic Diagram of CVD Reaction Chamber

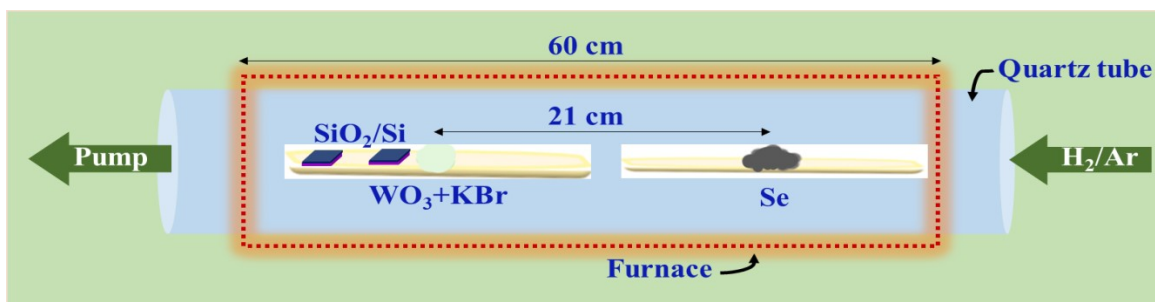


Figure S1. Schematic diagram of the reaction chamber for synthesis of WSe₂ flakes. The notations and symbols are in their usual meaning.

S2. X-ray Diffraction of Tungsten Oxide (WO₃) and Selenium (Se) Powder

In order to probe the quality of precursors prior to the synthesis of WSe₂ flakes, XRD has been performed. Figure S2a illustrates that the XRD pattern of WO₃ powder and the peak positions are well indexed with the orthorhombic WO₃ [JCPDS card (Reference code: 98-005-0728)]. The XRD pattern of Se powder is shown in Figure S2b, and the peak positions are indexed with the hexagonal Se [JCPDS card (Reference code: 98-002-2251)].

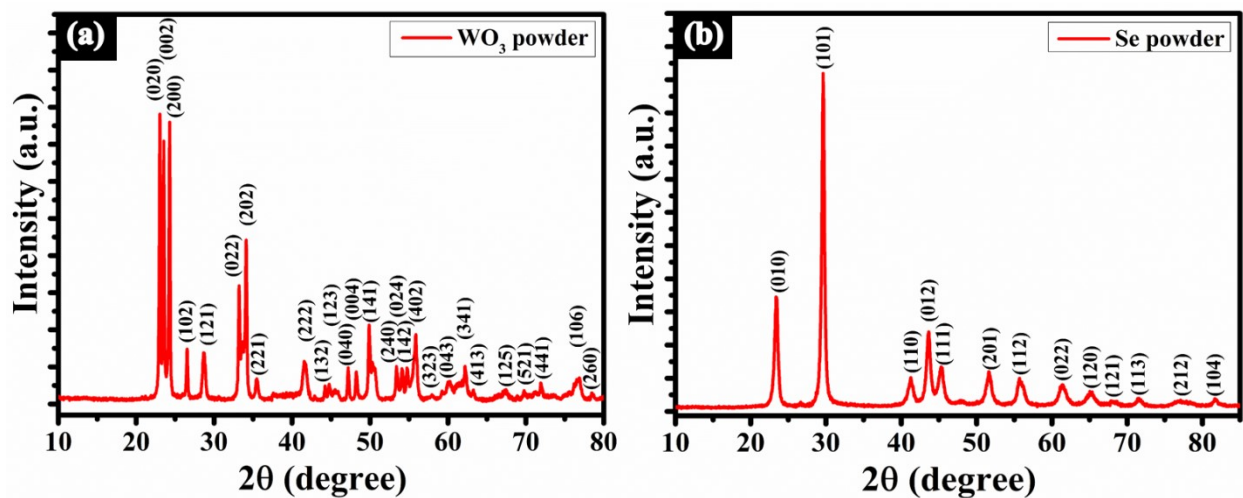


Figure S2. X-ray diffraction pattern of (a) WO₃ powder and (b) Se powder.

S3. PL Spectroscopy of WSe₂ Flakes Deposited on Si/SiO₂ Substrate

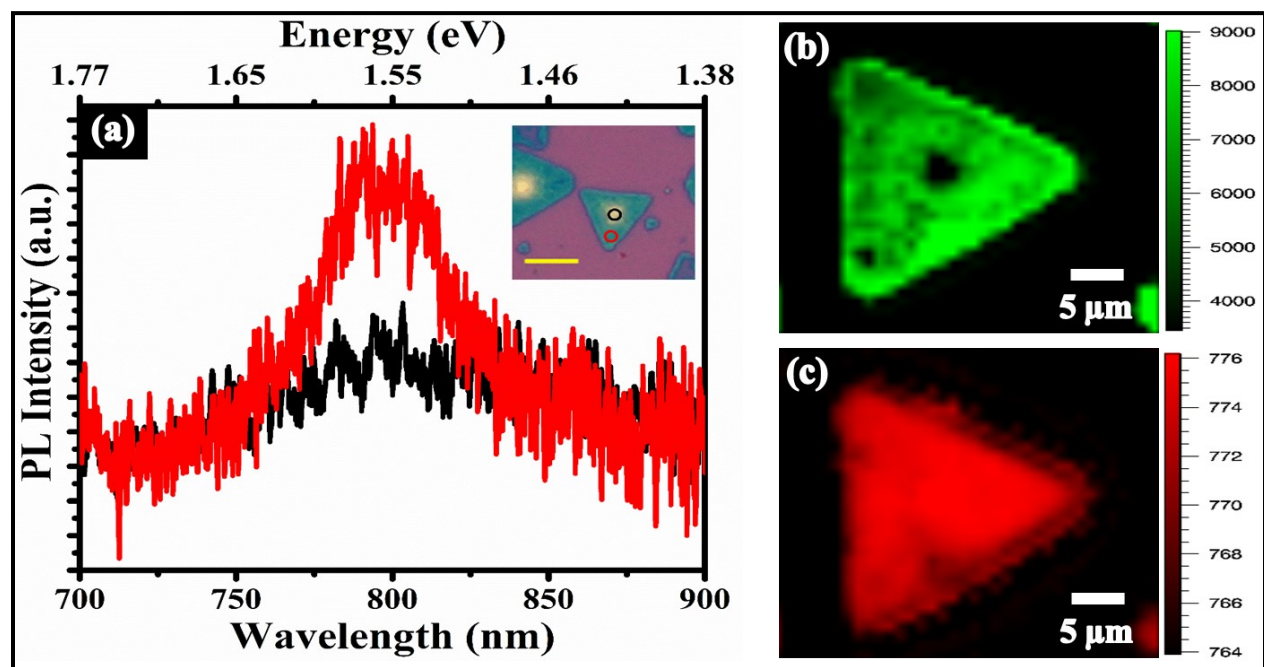


Figure S3. (a) PL spectra at the center and edge of the WSe₂ flake. Inset shows the optical image of the triangular WSe₂ flakes with a scale bar of 10 μm. The circular marks (black and red) in inset denote the locations where PL spectra are captured. PL mapping of A exciton peak in a triangular shape with respect to (b) peak intensity and (c) peak position.