Supplementary Information (SI) for Journal of Materials Chemistry C.

Supporting information for:

Ultra-long WSe_2 nanotubes and related hybrid nanostructures

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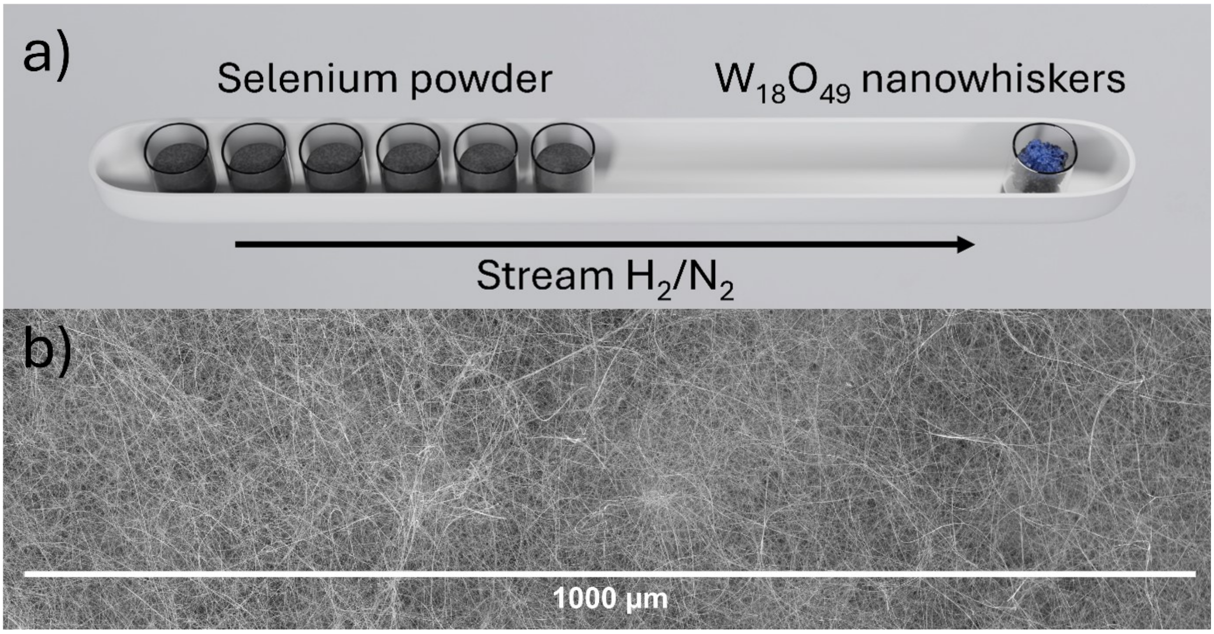

Figure 1S. a) Schematic rendering of the reaction modulus with multiple selenium sources placed downstream of the tungsten oxide nanowhiskers powder. The selenium crucibles were pushed gradually to the hot zone of the reactor to provide a semi-continuous flux of selenium vapor. b) low-magnified SEM image of the prepared WSe_2 ultralong nanotubes. The chosen scale bar is 1000 µm to demonstrate the macroscopic length of the prepared structures.

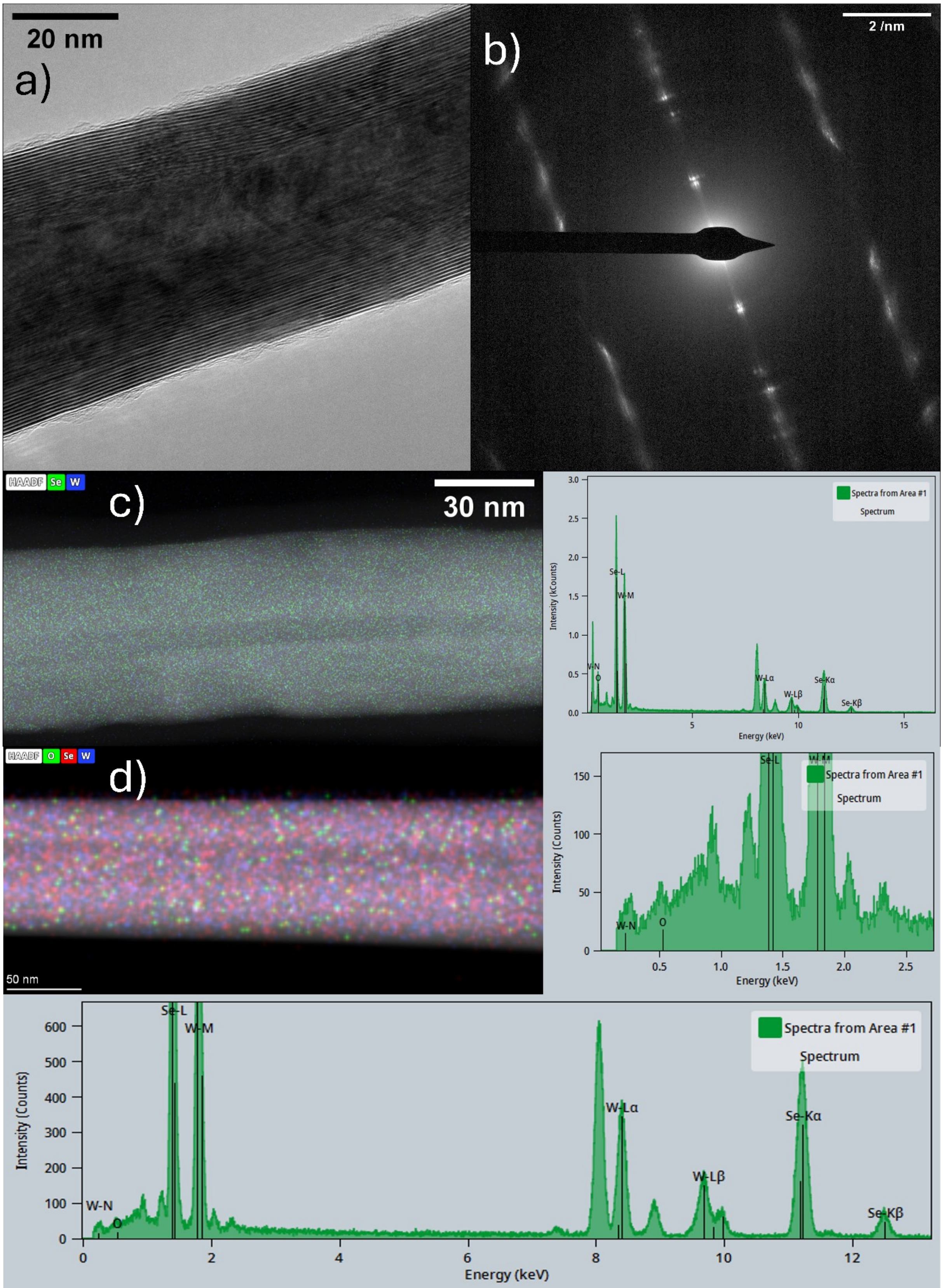

Figure 2S. a) TEM image of an ultra-long WSe_2 NT; b) Electron diffraction of the NT. c) STEM-EDS mapping with tungsten and selenium uniformly distributed throughout the nanotube d) another WSe_2 nanotube and its STEM-HAADF/EDS analysis focused primarily on oxygen content in the structure. The corresponding EDS spectra (expanded on the right and full spectrum at the bottom) show low oxygen content. Compared with c), where the high oxygen content arises primarily from the sample preparation and ambient contamination.

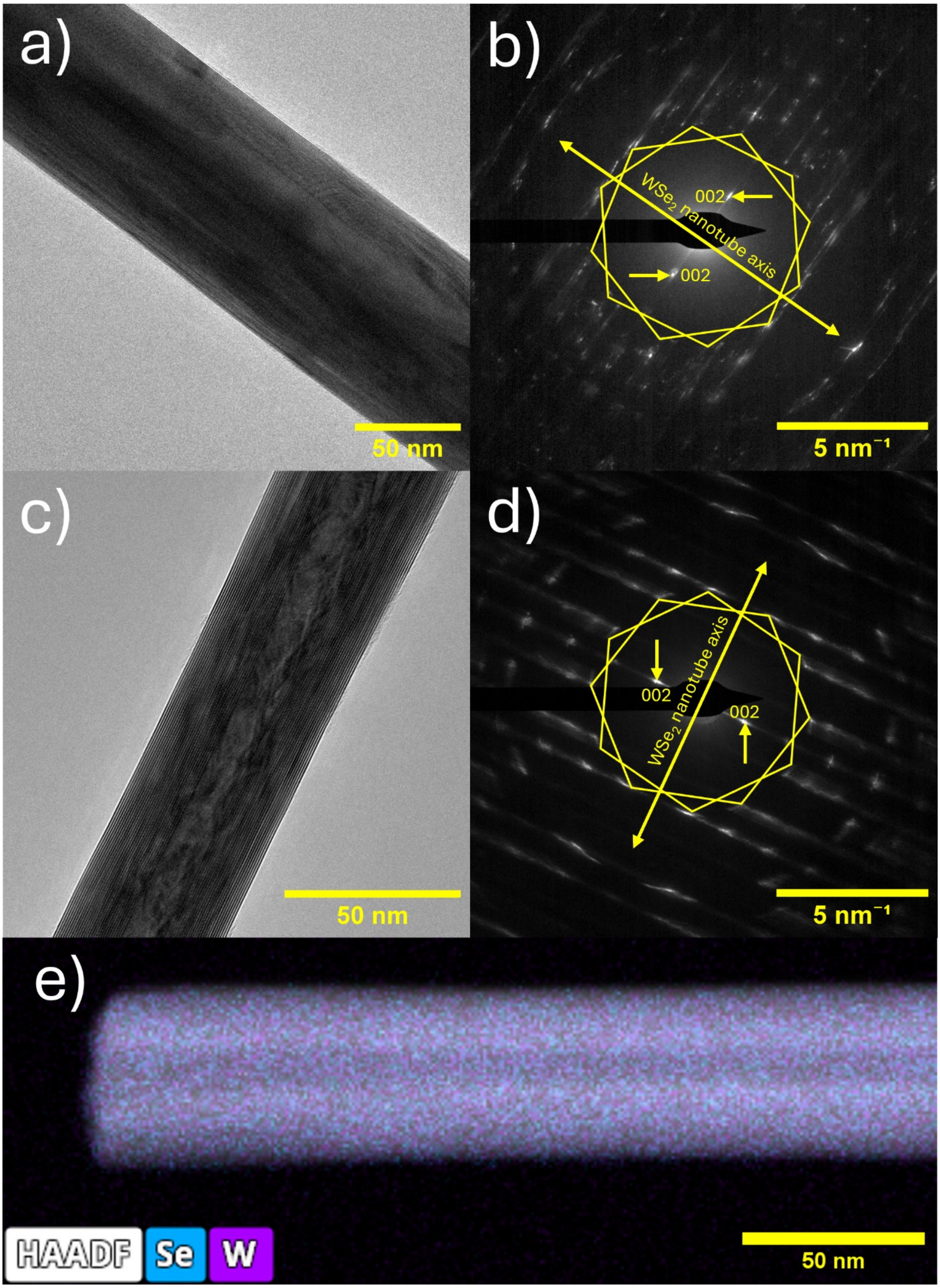

Figure 3S. TEM analysis of nanotubes of WSe_2. a) and c) TEM images of two different nanotubes, b) and c) their diffraction. e) STEM-EDS analysis

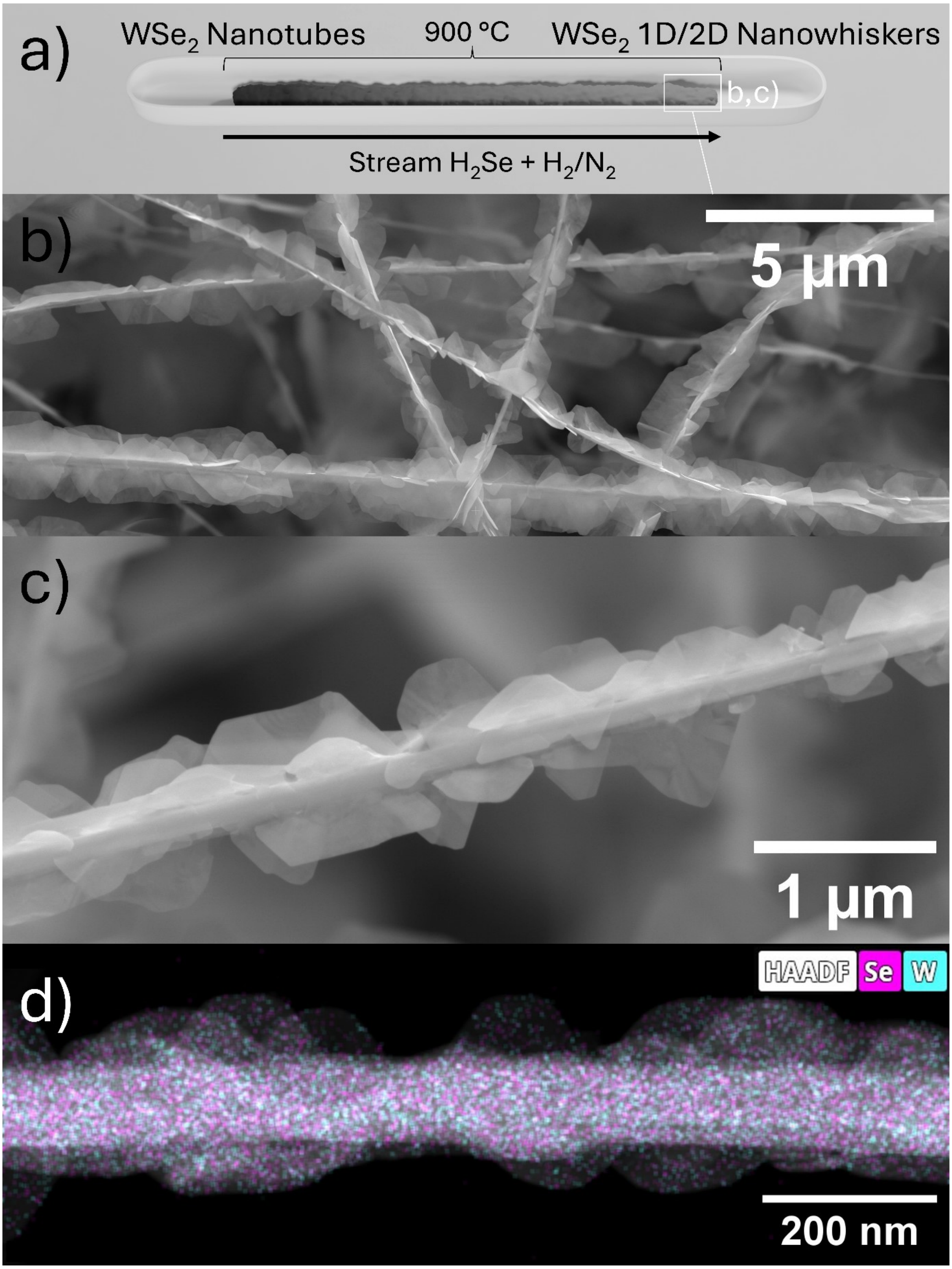

Figure 4S. Hybrid -tube/plates – scheme of synthesis- a); and a SEM image of such product in two magnifications- b& c. d) STEM-EDS analysis of the heterostructure showing the identical chemical composition of both plates and nanotube.

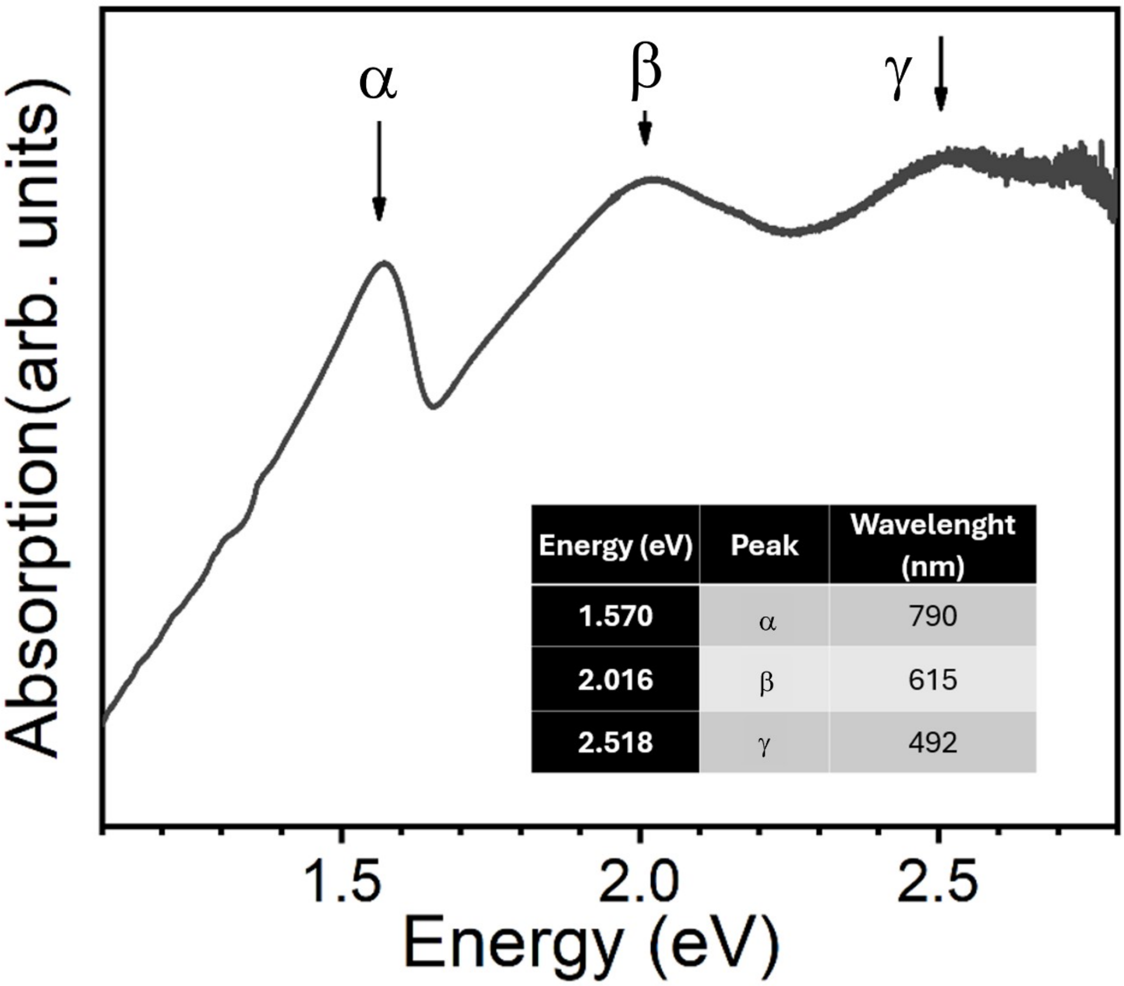

Figure 5S. Extinction measurements of an assortment of WSe_2 nanotubes dispersed in aqueous solution.

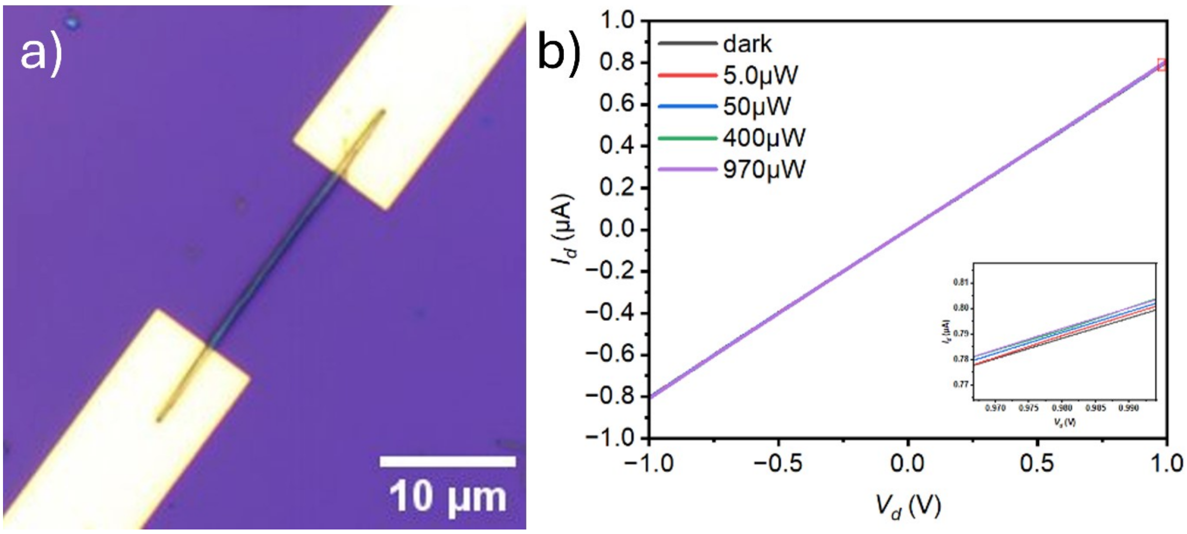

Figure 6S. Electrical transport measurements of individual $W_{18}O_{49}$@WSe_2 nanowhisker: a) SEM image of the 2-contact device with the laser spot on the center of the nanotube (channel); b) a typical I-V curve of the nanowhisker.