

Figure 1. a) Trigononal 1T crystal structure of HfS<sub>2</sub> and ZrS<sub>2</sub>. b) Cross-sectional transmission electron micrograph showing the layered structure of a 7 nm ZrS<sub>2</sub> film deposited on SiO<sub>2</sub>(native)/Si.

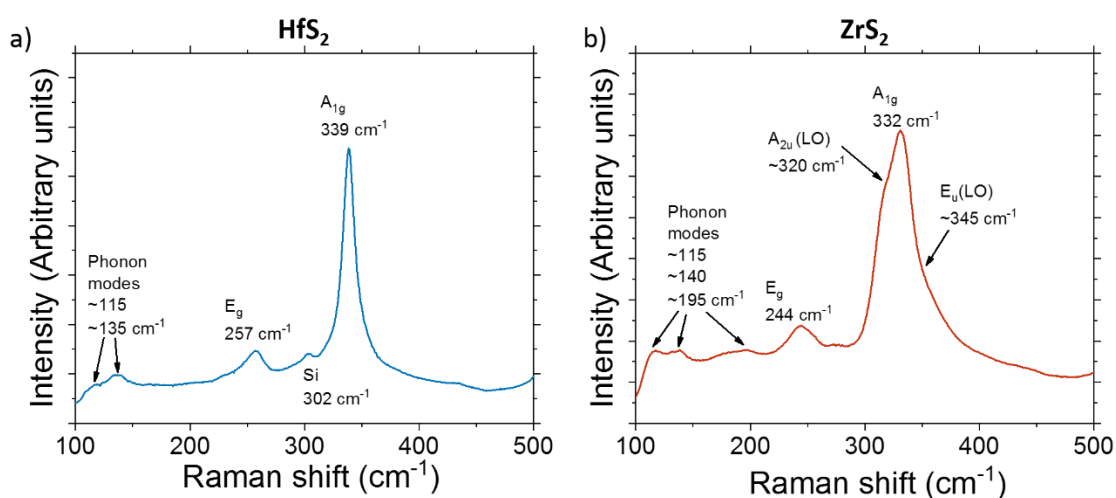


Figure 2. Raman spectra of a) HfS<sub>2</sub> (10 nm) and b) ZrS<sub>2</sub> (7 nm) films showing good crystallinity and absence of other crystalline phases.

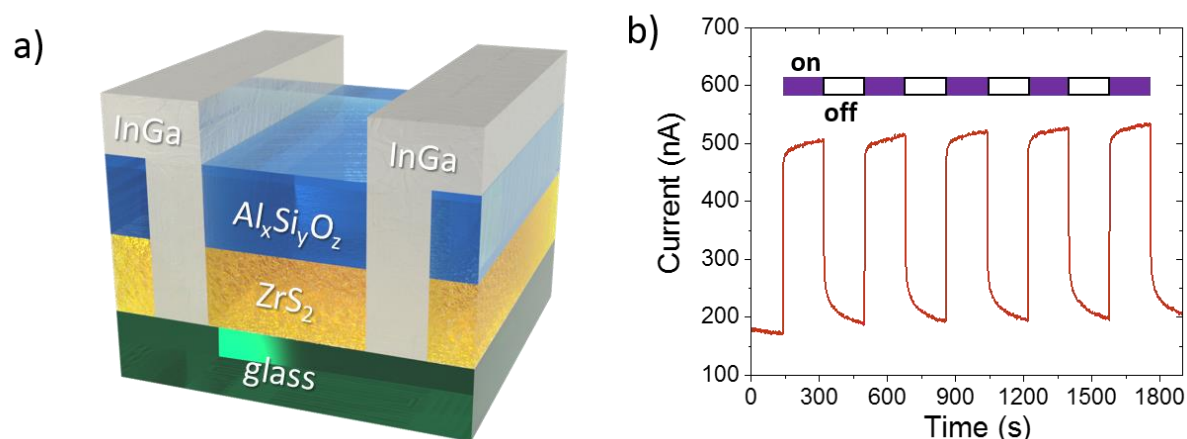


Figure 3. a) Schematic and b) photoresponse characteristics (I-t) of a ZrS<sub>2</sub> photodetector (7 nm of ZrS<sub>2</sub>) against violet light (405 nm) showing clear and repeatable photoresponse.