



Extended Data Figure 6 | Growth of multi-junction MoS_2 - WS_2 lateral heterostructure. a–d, Optical images of MoS_2 - WS_2 monolayer lateral heterostructures: single-junction (a), two-junction (b), three-junction (c), five-junction (d). e, Typical low-magnification optical image of the five-junction structure shown in d. f, SEM images of the three-junction MoS_2 - WS_2 lateral heterostructure shown in c. g, SEM image of a

three-junction single island (Fig. 2b). h, Typical photoluminescence spectra from MoS_2 and WS_2 domains of the three-junction heterostructure shown in g. The strong photoluminescence intensity compared with that of the Raman A_{1g} mode (over 300 times greater) indicates the monolayer nature as well as high optical quality of the as-grown heterostructure.