

Supplementary figures for abstract “Detection of individual nucleated dislocation slip trace during *in situ* TEM tensile testing by advanced image analysis”

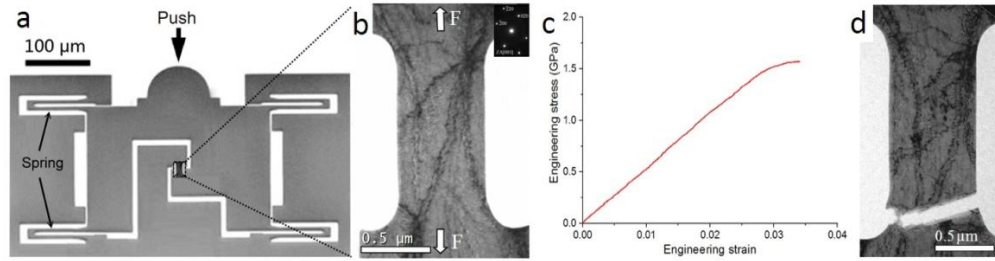


Fig. 1. Experimental set up. (a) PTP device, compression at the top results in a tension at the gap. (b) Dog-bone shaped Ni thin film sample geometry for mechanical testing in TEM, “F” indicates the load applied on the sample. (c) The corresponding engineering stress-strain curve. (d) Sample after fracture.

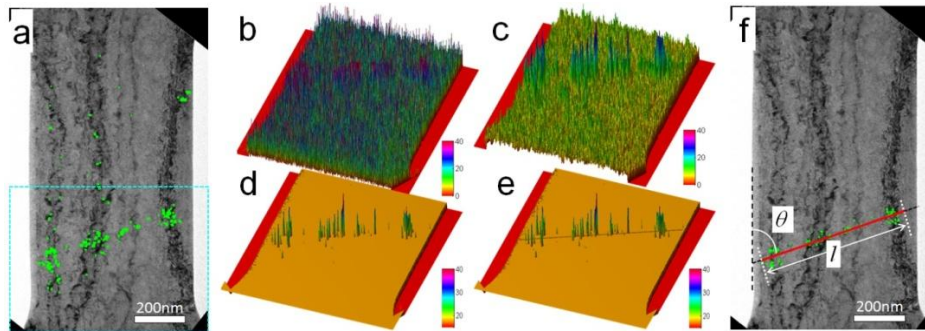


Fig. 2. Example of image processing for detecting dislocation slip traces from the video of *in situ* tensile testing. (a) BF image with marked contrast change in green from two consecutive images. The blue square indicates the area examined subsequently. (b) Selected area with the original intensity difference between two frames. (c) Denoising process with median filtering. (d) Applied threshold of intensity value to minimize the background. (e) Line fitting of detected dislocation slip trace. (f) Original BF image with the dislocation trace (red line) identified.

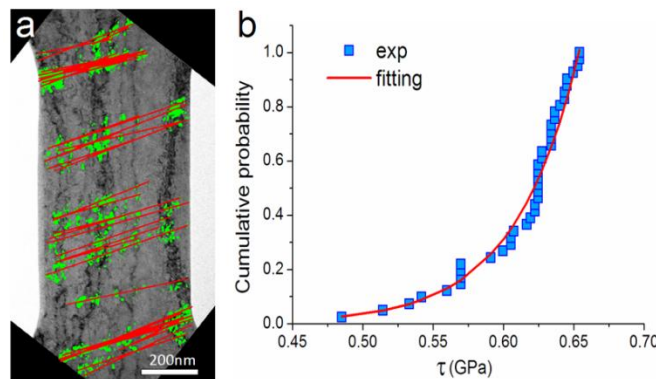


Fig. 3. Fitting the stress of the selected 41 dislocation slip traces with a cumulative probability function to get activation parameters. (a) Sample images with all 41 slip traces marked out. (b) Fitting of the cumulative probability function.