

Fig. S1 Raman Spectra of the $\text{WO}_x\text{-W}_{18}\text{O}_{49}$ nanourchins

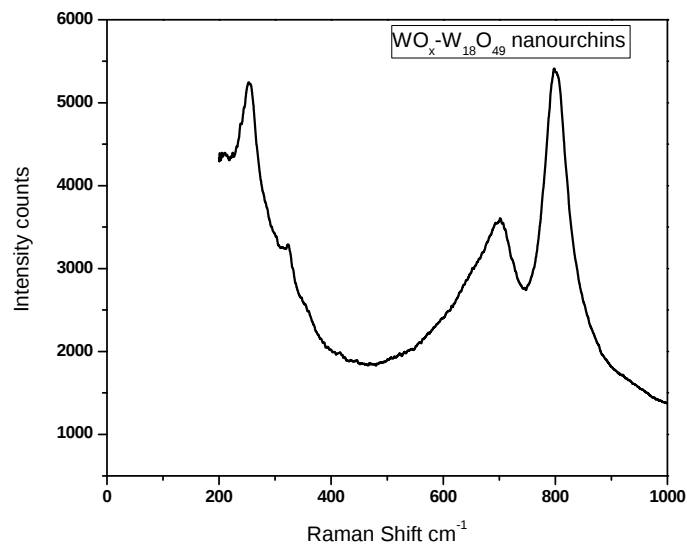
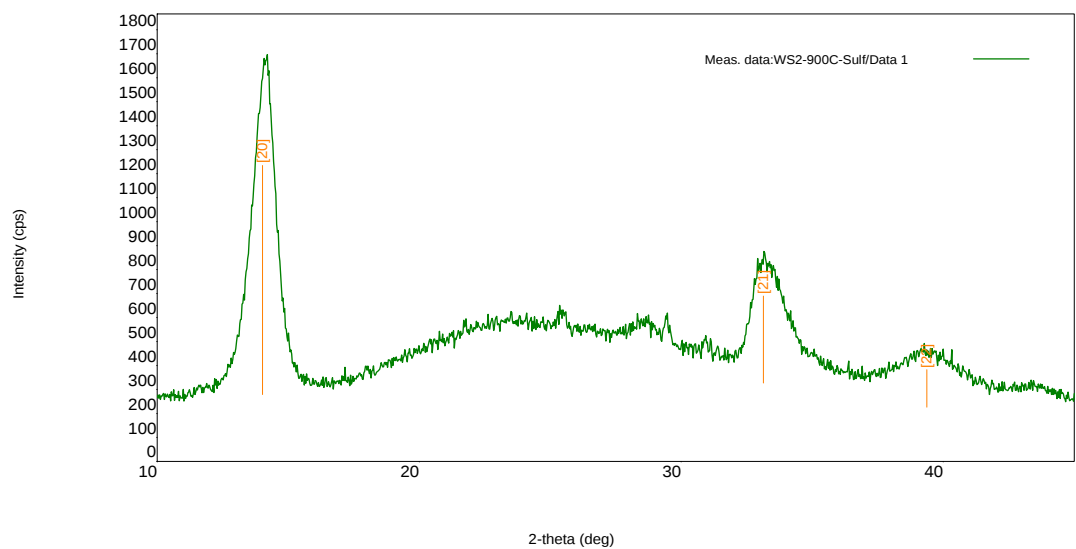


Fig. S2 XRD pattern of the IF- WS_2 nanoparticles



2-theta (deg)	d (ang)	Intensity	FWHM (deg)
14.02(5)	6.31(2)	955(23)	1.11(6)
33.14(15)	2.701(12)	362(14)	4.33(14)
39.4(2)	2.286(13)	156(9)	3.7(3)

Fig. S3 EDAX spectrum of the IF-WS₂ nanoparticles showing the presence of the characteristic and distinct W (L,M),and S (K) signals.

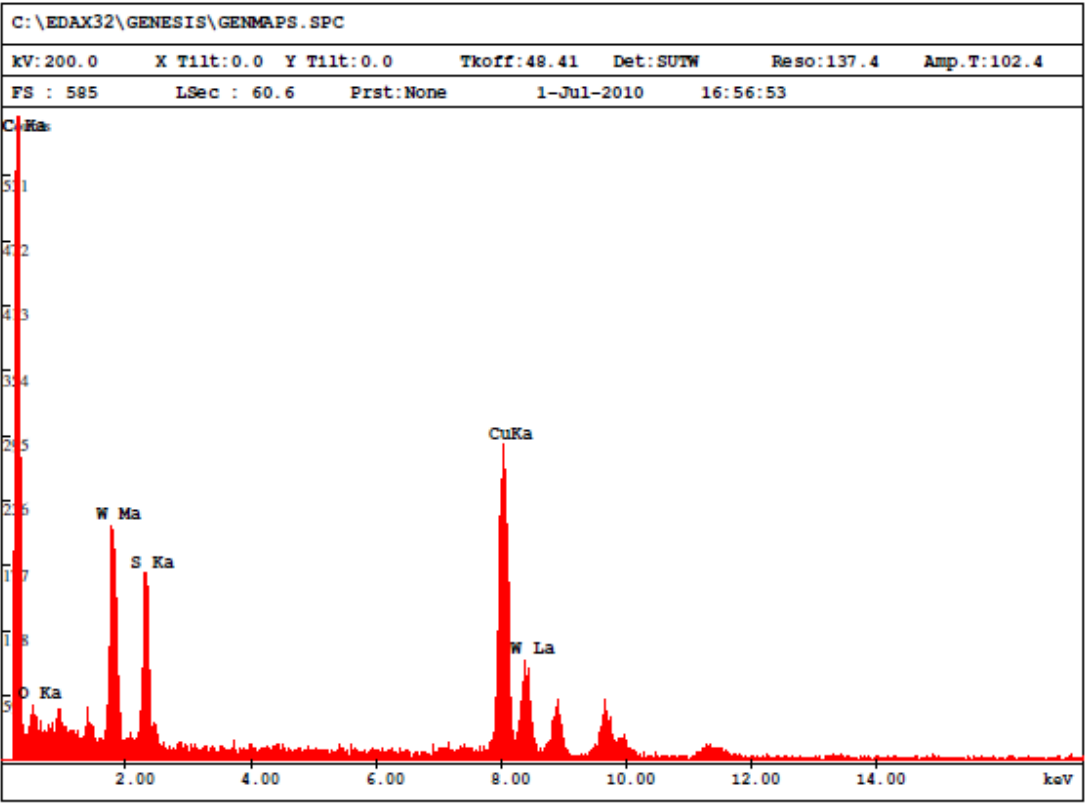
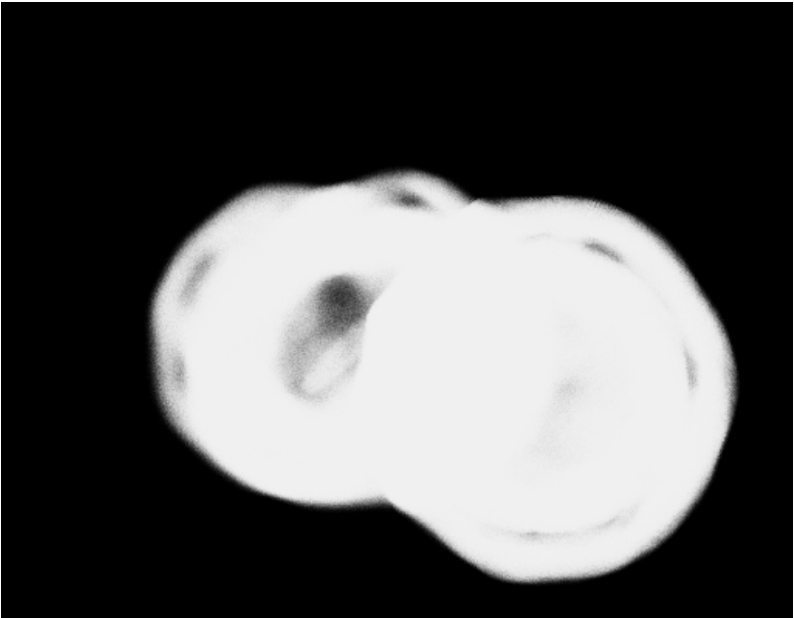


Fig. S4 Elemental maps of IF-WS₂ showing the presence of the characteristic and distinct W (L,M),and S (K) signals.

