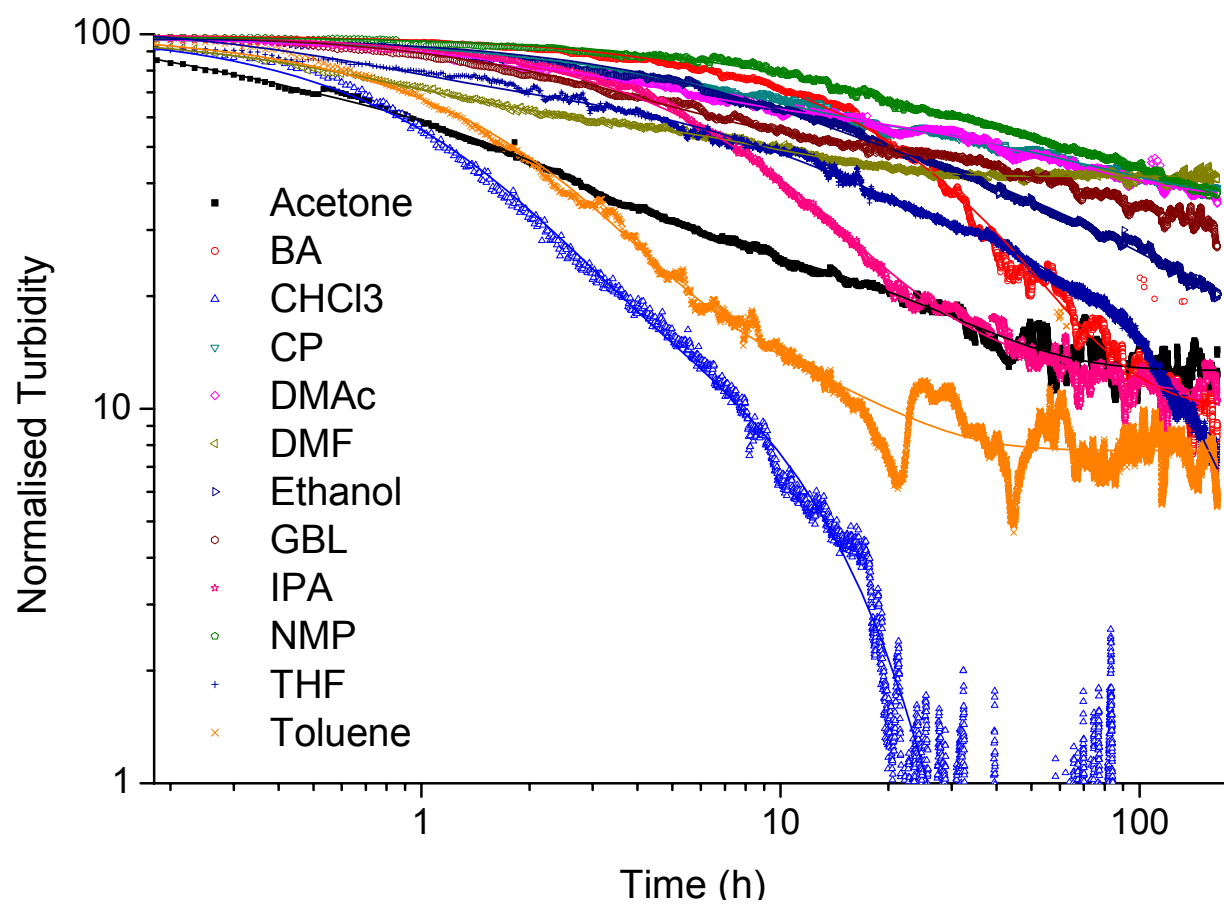


Supplementary Information

Sedimentation Curves:



Sedimentation Parameters

	Acetone	BA	CHCl₃	CP	DMAc	DMF
T_0	17	10	1	37	37	41
T_1	45	90	73	35	32	34
τ_1	1	26	1	6	3	1
T_2	29		26	28	31	24
τ_2	13		8	62	50	8
T_3	8					
τ_3	57					

	Ethanol	GBL	IPA	NMP	THF	Toluene
T_0	18	27	11	29	5	8
T_1	42	44	77	34	25	78
τ_1	8	3	8	14	1	2
T_2	40	29	12	37	35	14
τ_2	65	72	35	112	9	11
T_3					36	
τ_3					96	

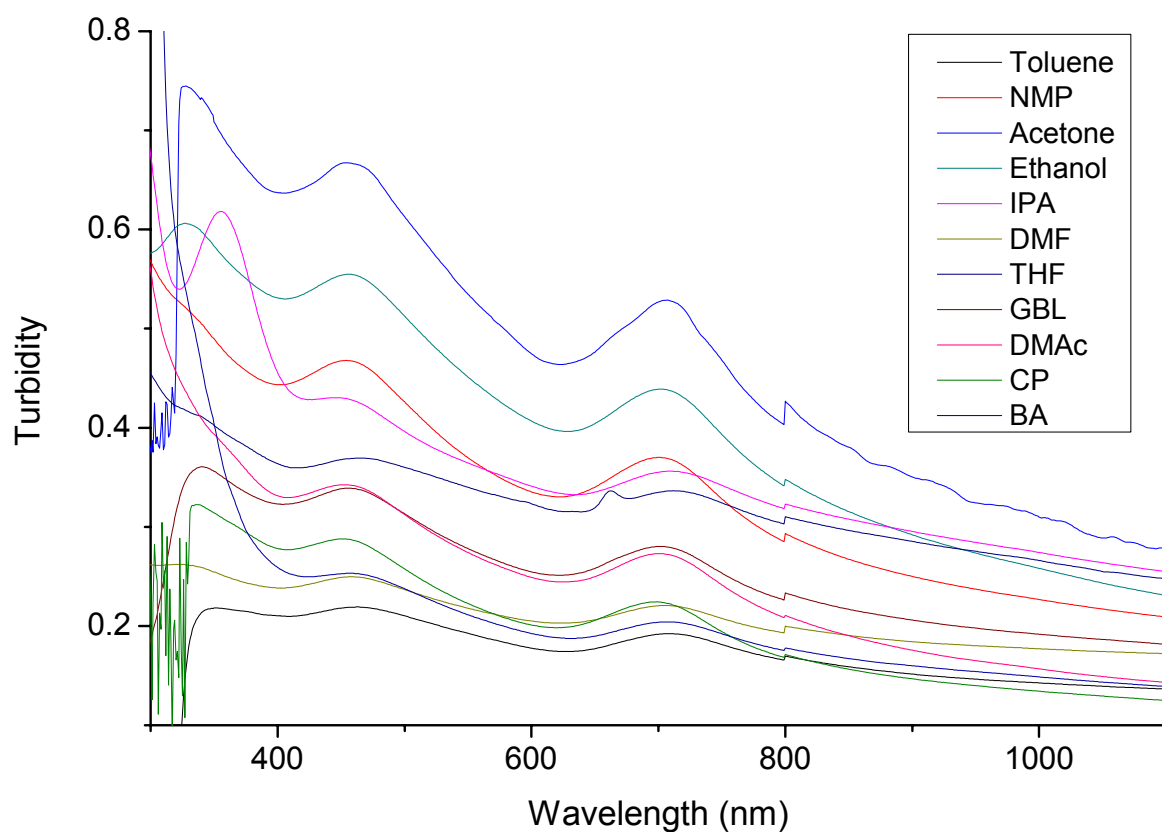
Turbidities T are in % of the initial turbidity. Time constants τ are in hours

Table SI1: TEM characterisation

Table SI1. a=NW bundles of aspect ratio < 3
b=NW bundles thicker than 100nm
c=NW bundles thinner than 100nm.
a*= impurities
Components are listed in order of abundance. Components of which there was very little are given in brackets.

Solvent	Sediment 1	Sediment 2	Sediment 3	Solute
<i>Acetone</i>	b	A	C	C
<i>Benzyl Alcohol</i>	b,a	-	-	c (tangled),a*,a
<i>Cyclopentanone</i>	b	c (tangled), a	-	c (mainly tangled), a
<i>Chloroform</i>	a,b,c	(a,b,c)	-	(a*)
<i>Dimethyl Acetamide</i>	b	a, a*	-	c, (a)
<i>Dimethyl Formamide</i>	b	b,a	-	C
<i>Ethanol</i>	a,(b)	a,(b)	-	C
<i>Gamma-butyrolactone</i>	b (a)	(b, a)	-	c (a*)
<i>2-propanol</i>	a,b,c	b, a	-	c, b, a*
<i>N-methyl-2-pyrrolidone</i>	b	b (a)	-	C
<i>Tetrahydrofuran</i>	b	a,b	A	c (tangled),a
<i>Toluene</i>	a,b	a,b	-	c,a,(b)

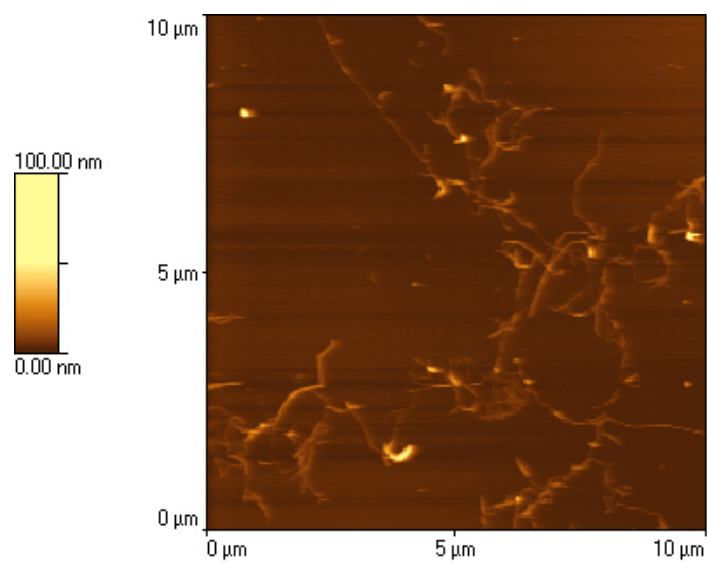
UV-vis Spectra in different solvents:



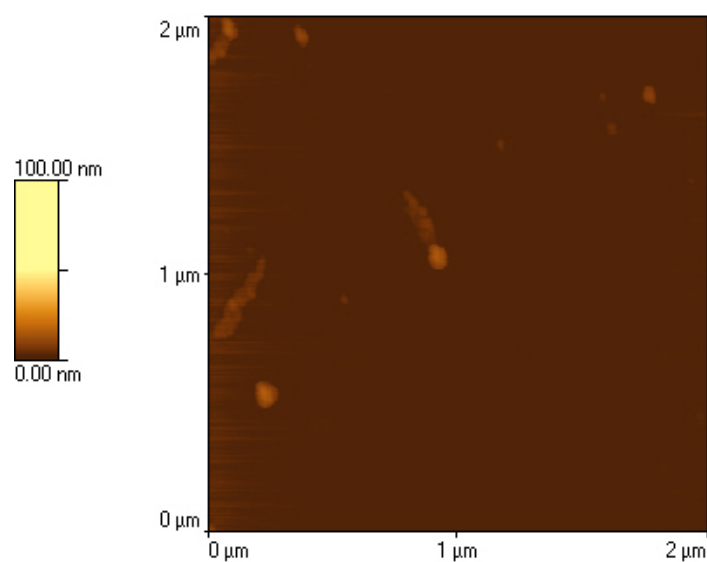
Characteristic peaks around 450nm, 700nm, coinciding with peaks measured from $\text{Mo}_6\text{S}_3\text{I}_6$ and $\text{Mo}_6\text{S}_{4.5}\text{I}_{4.5}$ NWs (REF). The notch at 800nm is a grating change in the spectrometer.

AFM Images

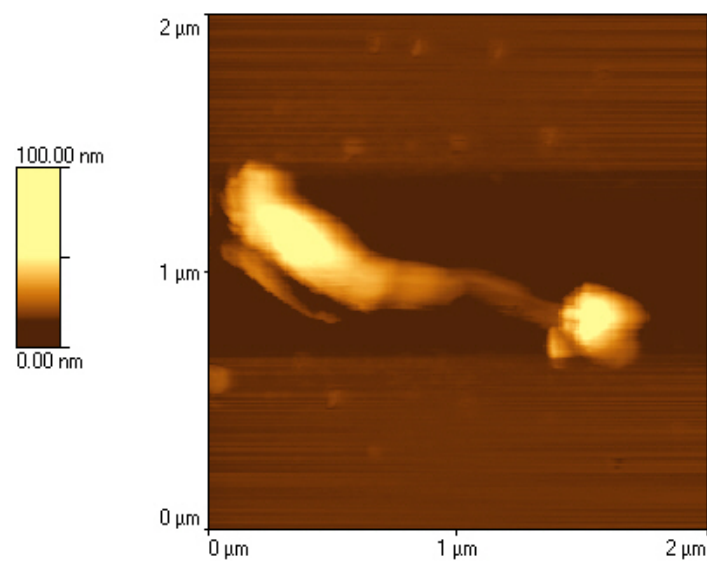
C_0



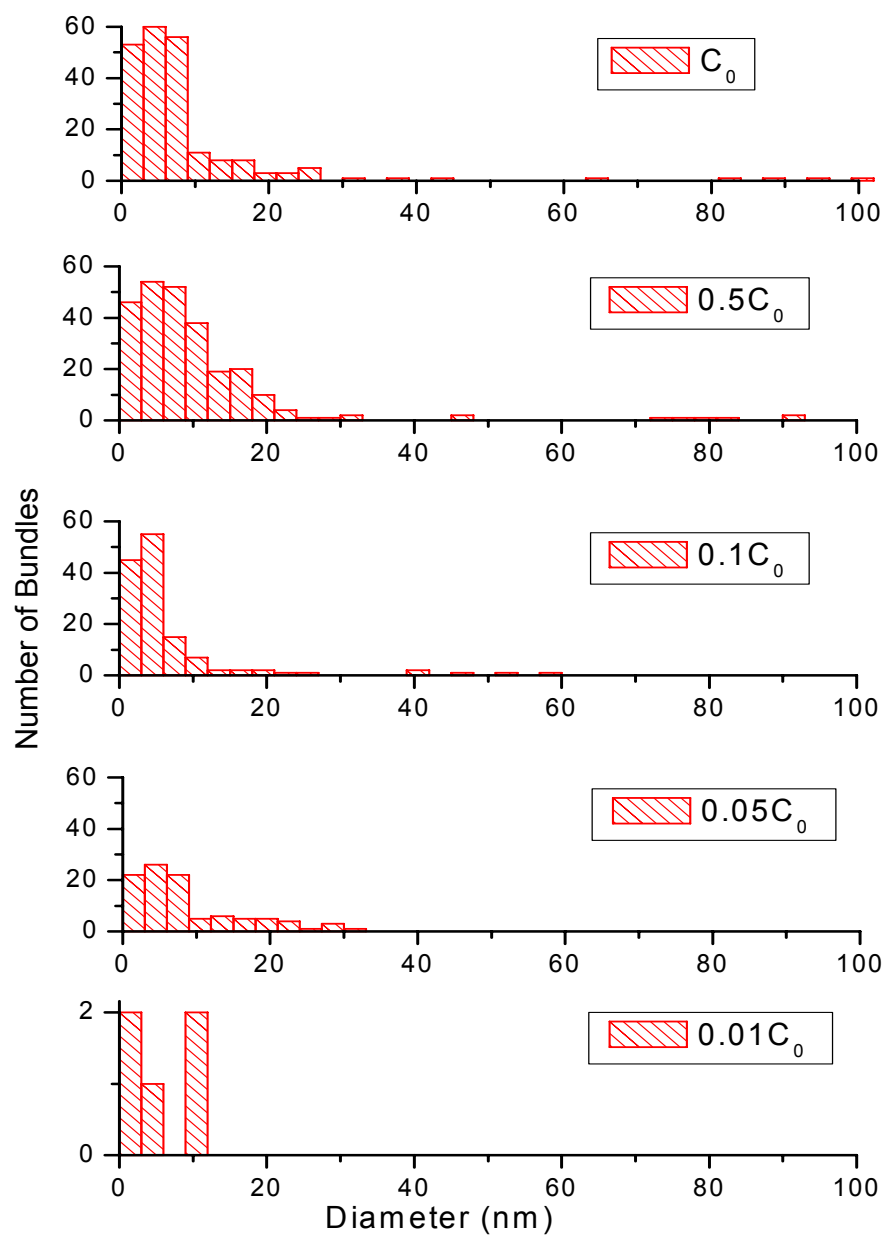
$0.1 C_0$



$0.01 C_0$



Bundle diameter distributions at different solute concentrations, as measured from AFM Images. C_0 is the concentration of solute obtained from sedimentation.



EELS spectrum from 628 MoSI nanowires

