

## Electronic Supporting Information (ESI)

### Bottom-up molecular assembly of Ru(II)polypyridyl complex-based hybrid nanostructures decorated with silver nanoparticles: Ag nitrate concentration effect

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Fig. S1 TEM of Ru(II)-Ag I hybrid misfolded sheets

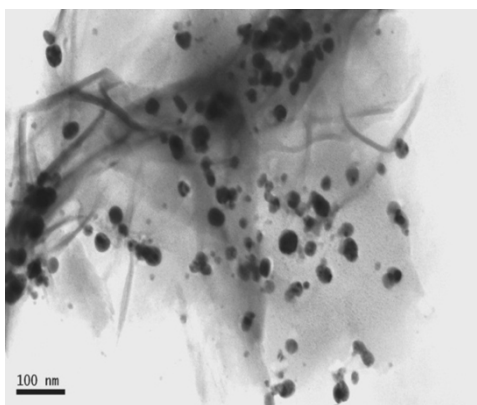


Fig. S2 TEM and electron diffraction (ED) of Ru(II)-Ag III hybrid nanotubes (HNTs)

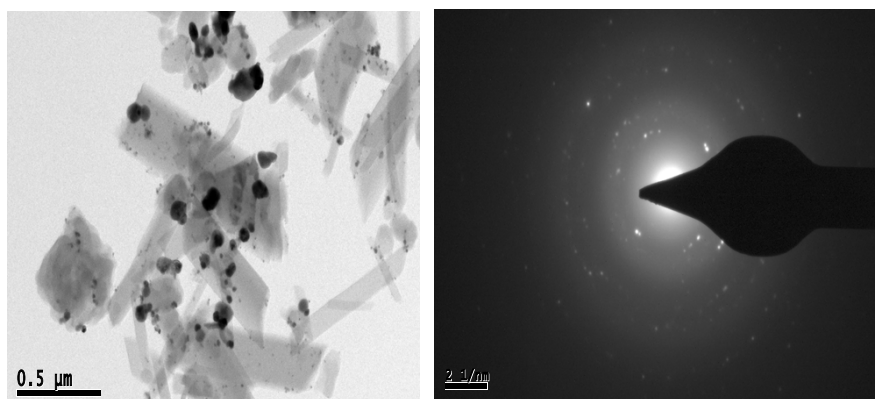


Fig. S3 TEM and ED of Ru(II)- Ag IV HNTs

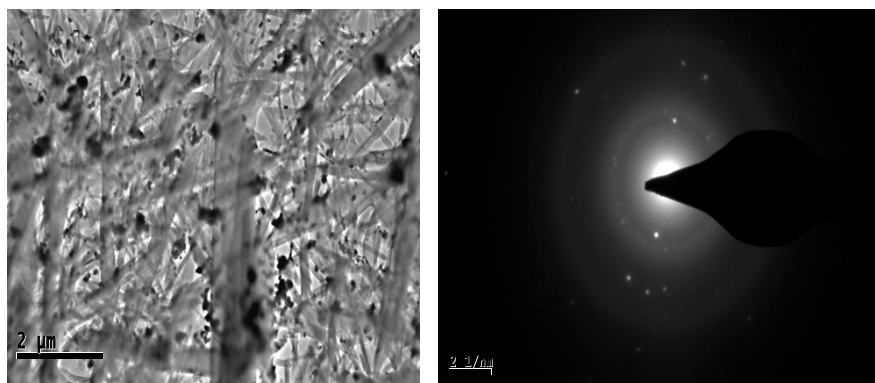


Fig. S4 TEM and ED of Ru(II)- Ag V HNTs

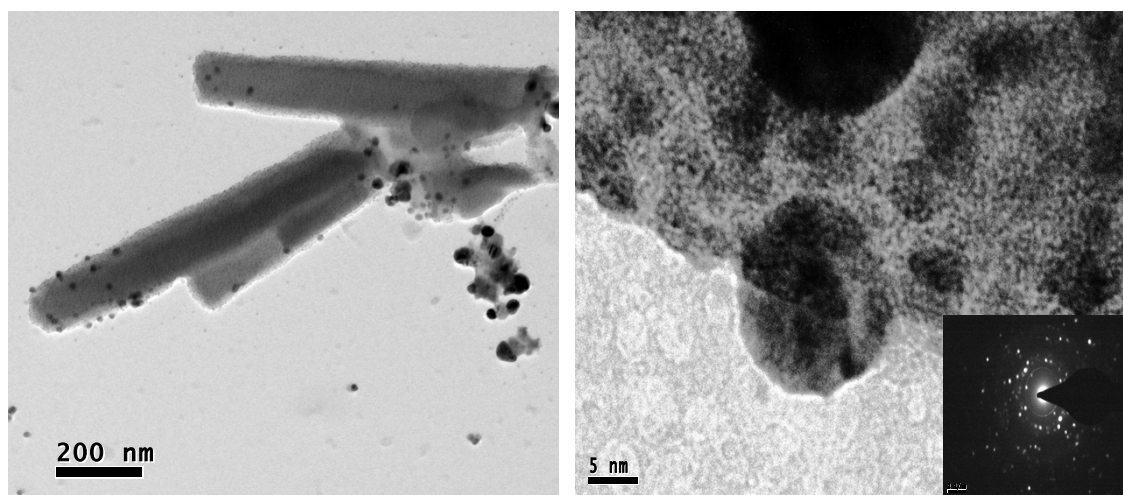


Fig. S5 TEM and ED of Ru(II)-Ag VI wider HNTs

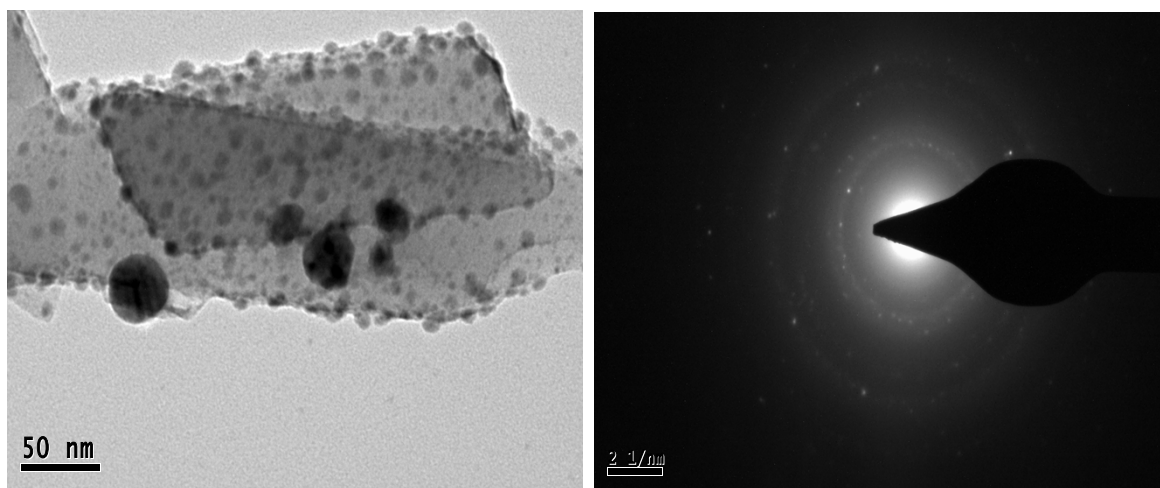


Fig. S6 TEM and ED of citrate capped Ag NPs with nanorod

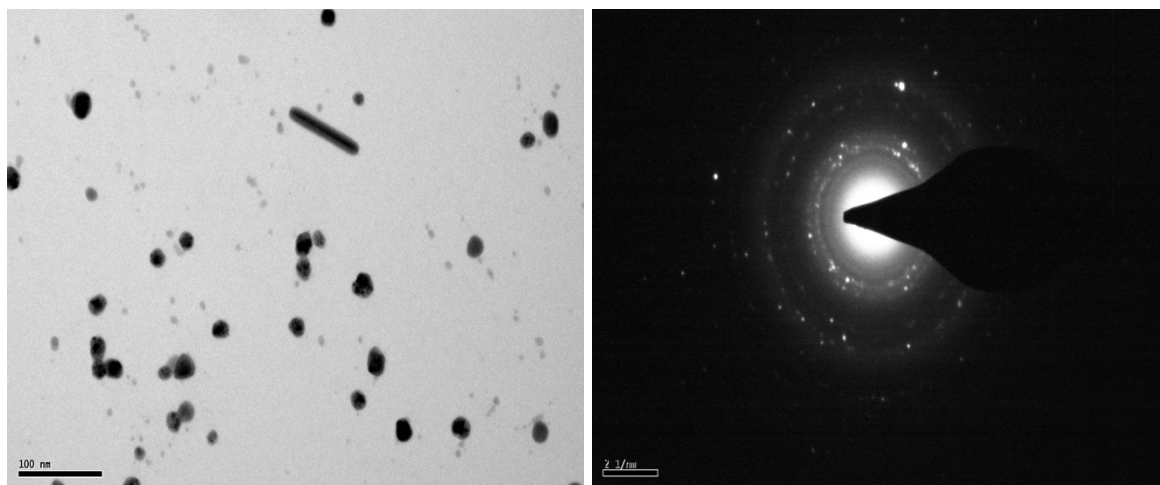
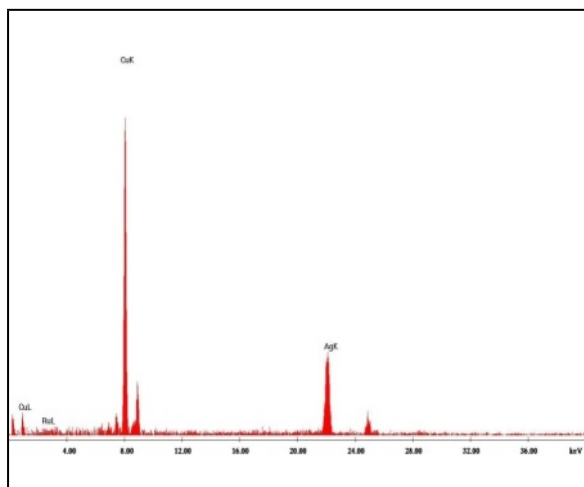
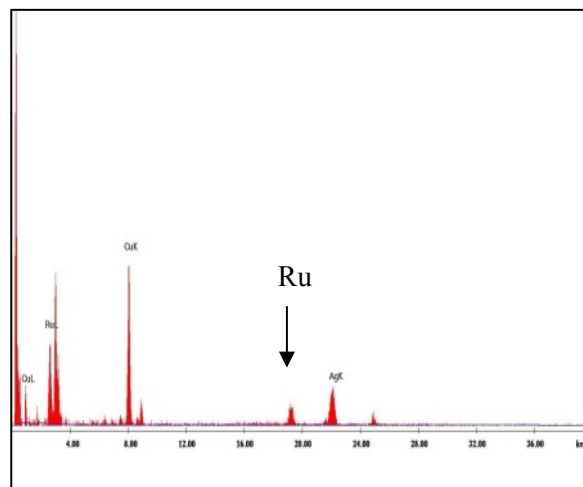


Fig. S7 Electron X-ray diffraction spectrometry (EDS) of Ru(II)-Ag hybrid nanostructures

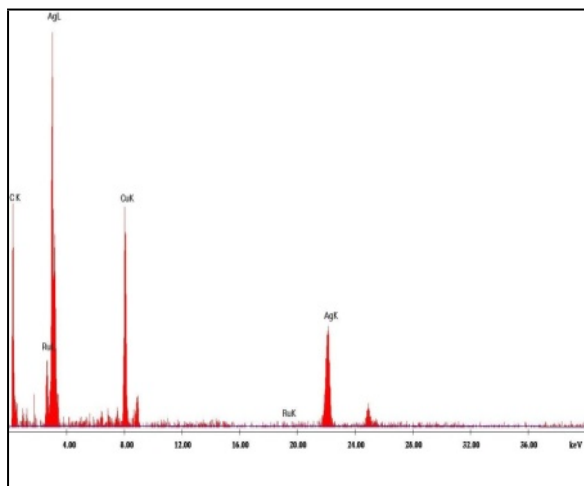
Ru(II)-Ag I



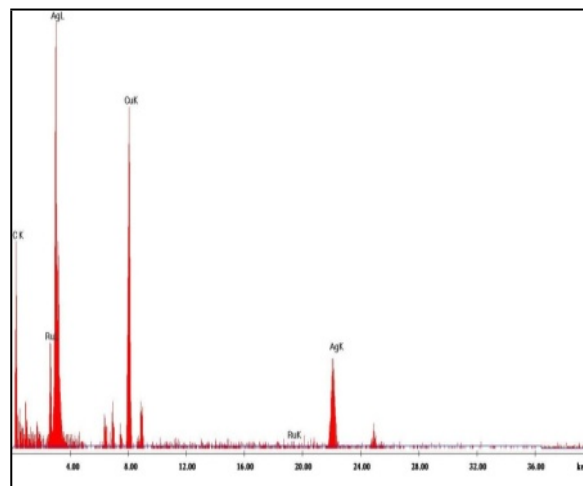
Ru(II)-Ag III



Ru-Ag IV



Ru(II)-Ag V



Ru(II)-Ag VI

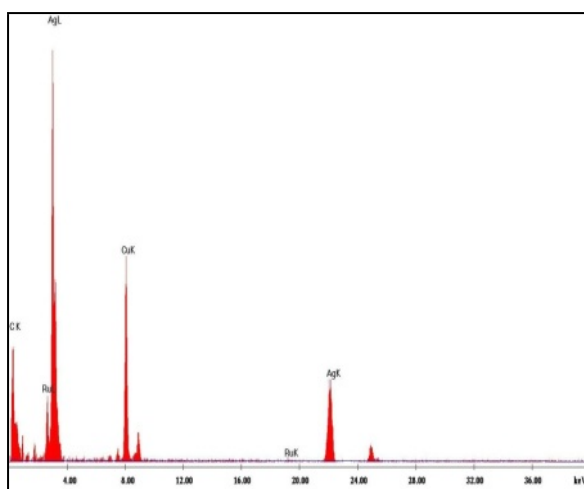
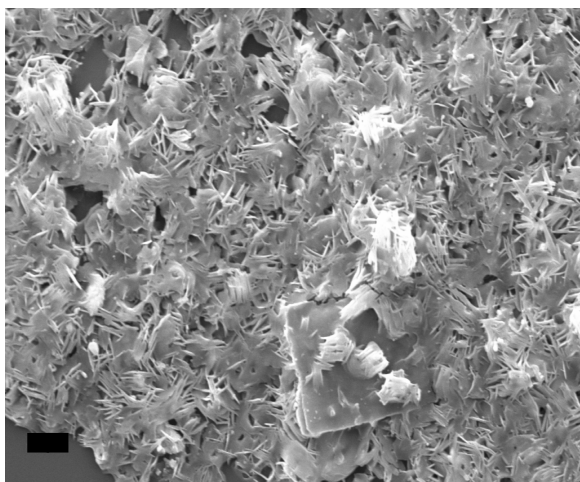


Fig. S8 SEM images of Ru(II)-Ag hybrids molar ratio = 2.0, 5.4

Ru(II)-Ag II nanostructure  
(Scale bar 4  $\mu\text{m}$ )



Ru(II)-Ag V HNTs  
(Scale bar 200 nm)

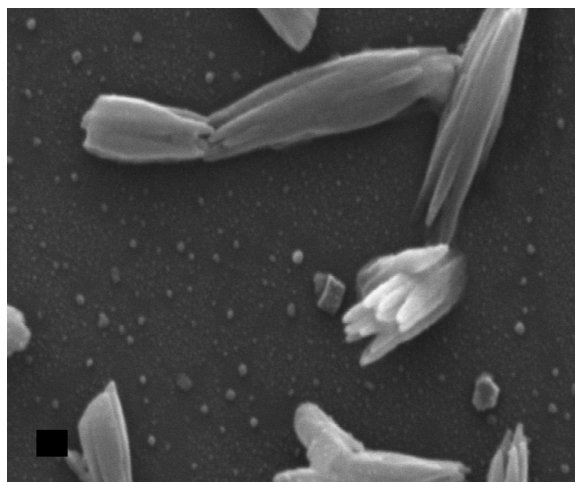


Fig. S9 Powder X-ray diffraction (PXRD) pattern of Ru(II)-Ag HNTs

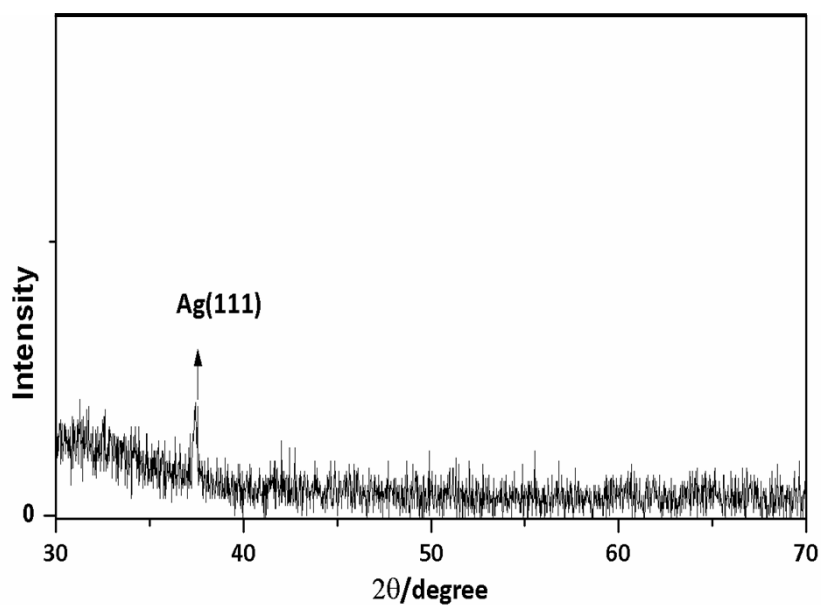
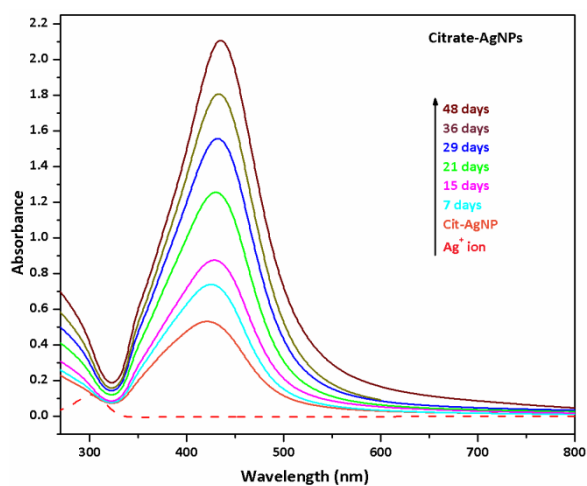


Fig. S10 UV-Vis spectra of citrate-Ag NPs



**Table S1.** Summary of experiment details and morphologies (Reaction temperature = 80°C, 24h, N<sub>2</sub>)

AgNO <sub>3</sub> (mg/ mmol)	Ru(II)- sensitizer (mg)	[Ag <sup>+</sup> /Ru <sup>2+</sup> ] ratio	ACN: EtOH : H <sub>2</sub> O (3:1:1 v/v) (ml)	Morphology observed
1.8/0.01	9.6	1.04	10	Ag nanocomposites and hybrid misfolded sheets <sup>a</sup>
3.4/0.02	9.6	2.0	10	Nanotube cum hybrid sheets <sup>b</sup>
5.1/0.03	9.6	3.1	10	HNT with Ag NPs <sup>a</sup>
6.8/0.04	9.6	4.2	10	Long HNTs with Ag NPs <sup>a</sup>
8.5/0.05	9.6	5.2	10	nanotube bundles <sup>b</sup>
10.5/0.06	9.6	6.4	10	Wide HNTs with large Ag NPs <sup>a</sup>

<sup>a</sup> Morphology assigned based on TEM micrographs<sup>b</sup> Morphology assigned based on SEM micrographs**Table S2.** Summary of EDS analysis

[Ag <sup>+</sup> /Ru <sup>2+</sup> ] ratio	Atomic weight %		Weight %	
	Ag <sup>0</sup>	Ru <sup>2+</sup>	Ag <sup>0</sup>	Ru <sup>2+</sup>
1.0	42.0	0.8	55.0	0.9
3.1	33.2	22.3	41.3	26.0
4.2	18.0	0.4	52.7	1.1
5.2	17.6	0.2	46.9	0.6
6.4	23.1	0.4	56.7	0.8