



Supporting Information

for

Unravelling the interfacial interaction in mesoporous SiO₂@nickel phyllosilicate/TiO₂ core–shell nanostructures for photocatalytic activity

Bridget K. Mutuma, Xiluva Mathebula, Isaac Nongwe, Bonakele P. Mtolo, Boitumelo J. Matsoso, Rudolph Erasmus, Zikhona Tetana and Neil J. Coville

Beilstein J. Nanotechnol. **2020**, *11*, 1834–1846. doi:10.3762/bjnano.11.165

Additional experimental results

Table S1: Summary of atom % concentration for the Si 2p, Si 2s, O 1s, Ni 2p, Ni 2s and Ti 2p spectra in the samples.

Sample name	Peak	Binding energy (eV)	concentration (atom %)
mSiO₂@NiPS	Si 2p	103	2.21
	Si 2s	154	2.08
	C 1s	285	69.24
	O 1s	532	19.53
	Ni 2s	977	6.72
	Ni 2p	856	0.21
mSiO₂@NiPS/TiO₂	Si 2p	102	0.85
	Si 2s	153	0.90
	C 1s	285	76.52
	O 1s	532	19.69
	Ni 2s	1000	1.93
	Ti 2p	459	0.10

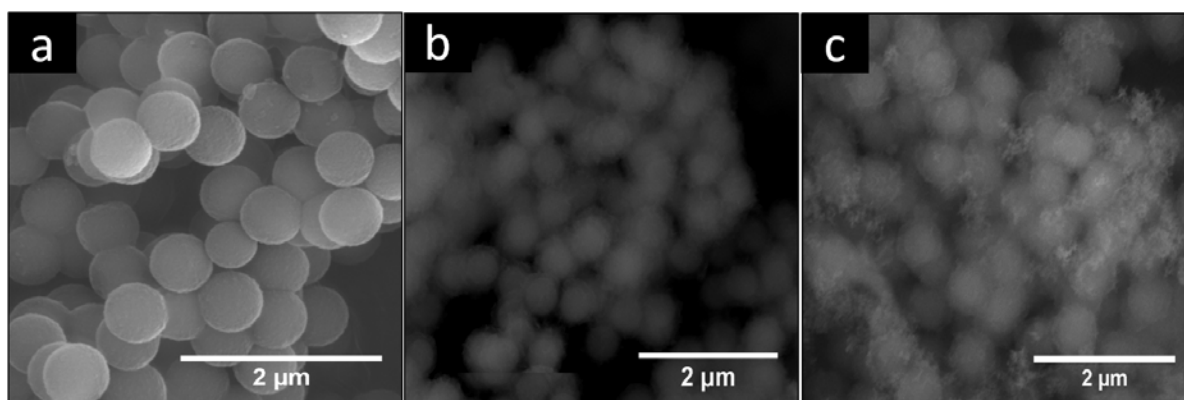


Figure S1: SEM images of (a) mSiO₂, (b) mSiO₂@NiPS and (c) mSiO₂@NiPS/TiO₂ core-shell nanomaterials.

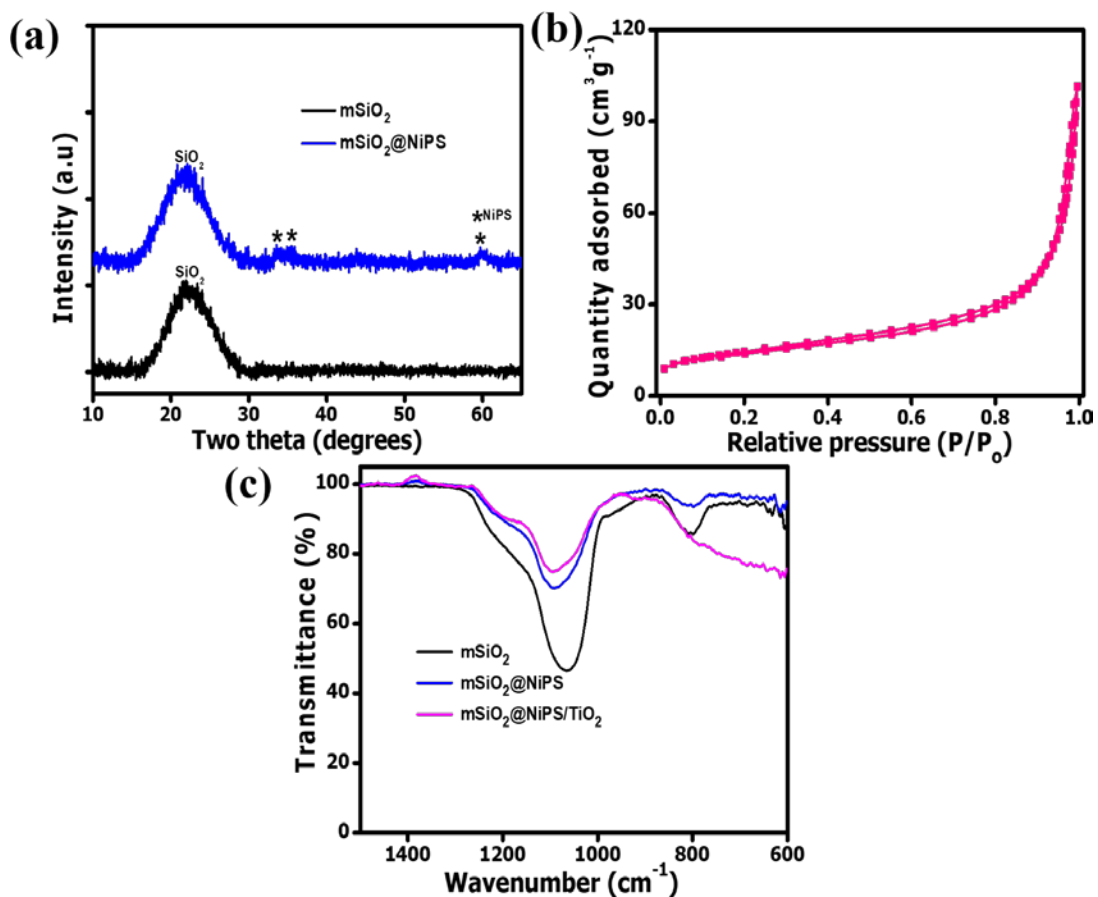


Figure S2: (a) XRD patterns mSiO₂ and mSiO₂@NiPS, (b) N₂ adsorption–desorption isotherm of TiO₂ and (c) FTIR spectra of mSiO₂, mSiO₂@NiPS and mSiO₂@NiPS/TiO₂.

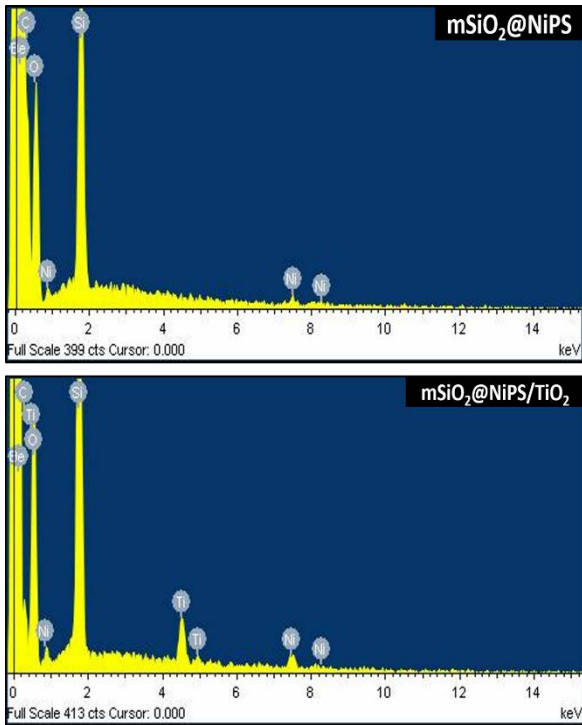


Figure S3: EDX spectra of the $mSiO_2@NiPS$ and $mSiO_2@NiPS/TiO_2$ core-shell nanomaterials.

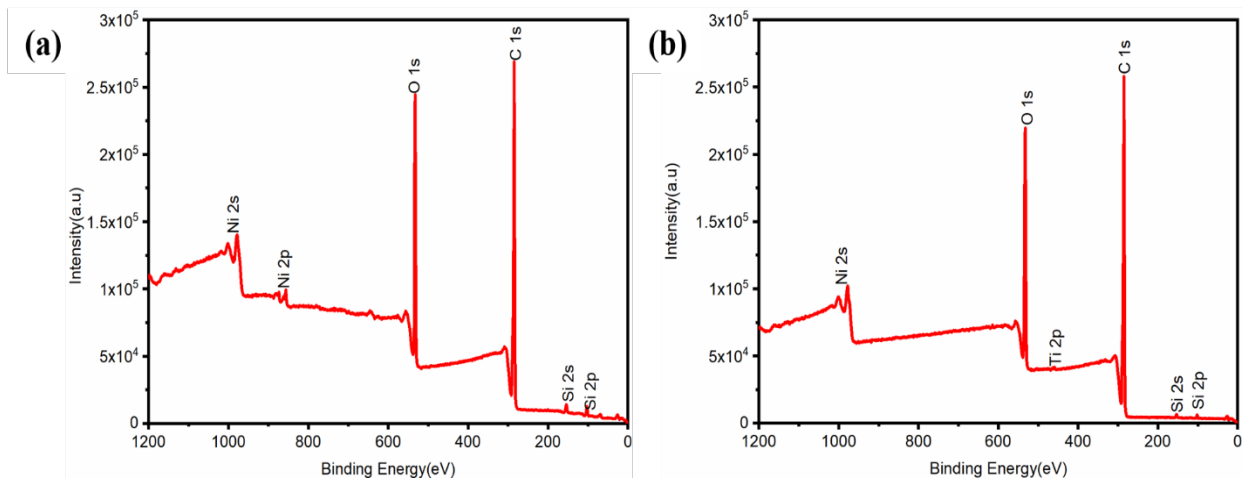


Figure S4: Wide-scan survey spectra of (a) $mSiO_2@NiPS$ and (b) $mSiO_2@NiPS/TiO_2$ nanomaterials.