Supporting Information:

Table S1 Assignments of the main infrared absorption bands for Phen-Si-Eu, Phen-Si-Eu-NA, Phen-Si-Eu-PMMA, Phen-Si-Eu-PVP, Phen-Si-Sm, Phen-Si-Sm-NA, Phen-Si-Sm-PMMA and Phen-Si-Sm-PVP

Hybrid materials	ν(CONH)	ν(NO_3^-)	ν(Si-O)	ν(Si-C)
Phen-Si-Eu	1657	1381	1058-1140	1205
Phen-Si-Eu-NA	1652	1387	1040-1111	1182
Phen-Si-Eu-PMMA	1652	1381	1057-1122	1193
Phen-Si-Eu-PVP	1664	1387	1052-1105	1204
Phen-Si-Sm	1657	1387	1046-1134	1199
Phen-Si-Sm-NA	1646	1387	1028-1111	1175
Phen-Si-Sm-PMMA	1652	1387	1046-1105	1199
Phen-Si-Sm-PVP	1658	1392	1046-1134	1205

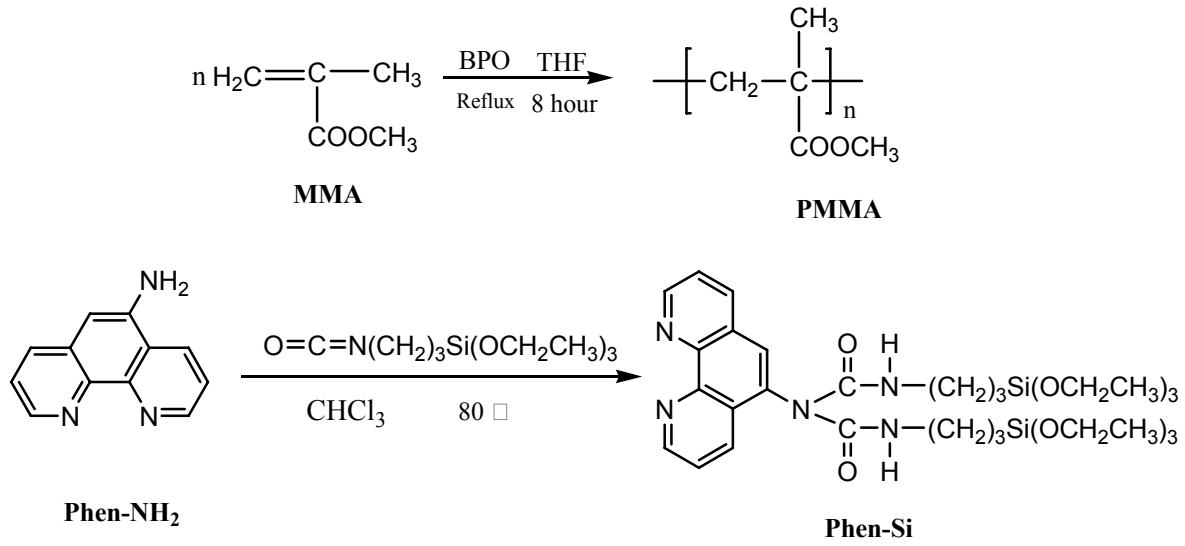

Figure S1 Scheme of the synthesis process of the precursor Phen-Si, polymer PMMA

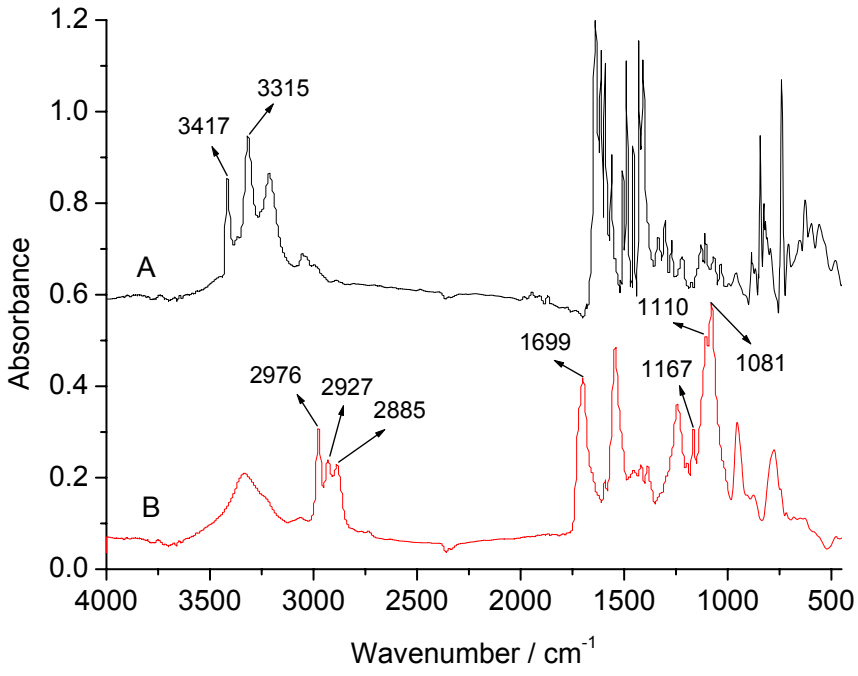

Figure S2 FTIR spectra of the free ligand (A) Phen-NH_2 and the precursor (B) Phen-Si.

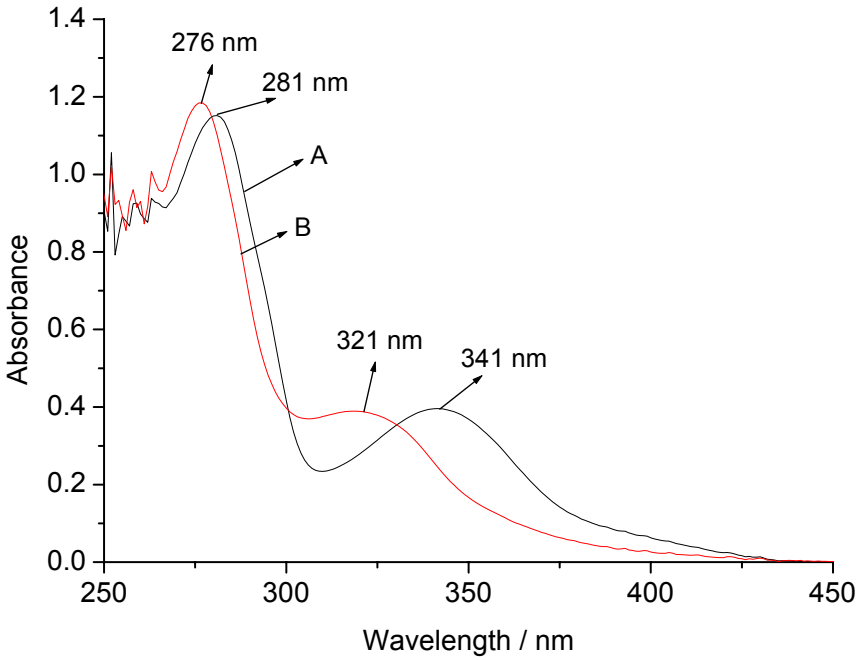

Figure S3 Ultraviolet absorption spectra of (A) Phen-NH_2 and (B) Phen-Si.

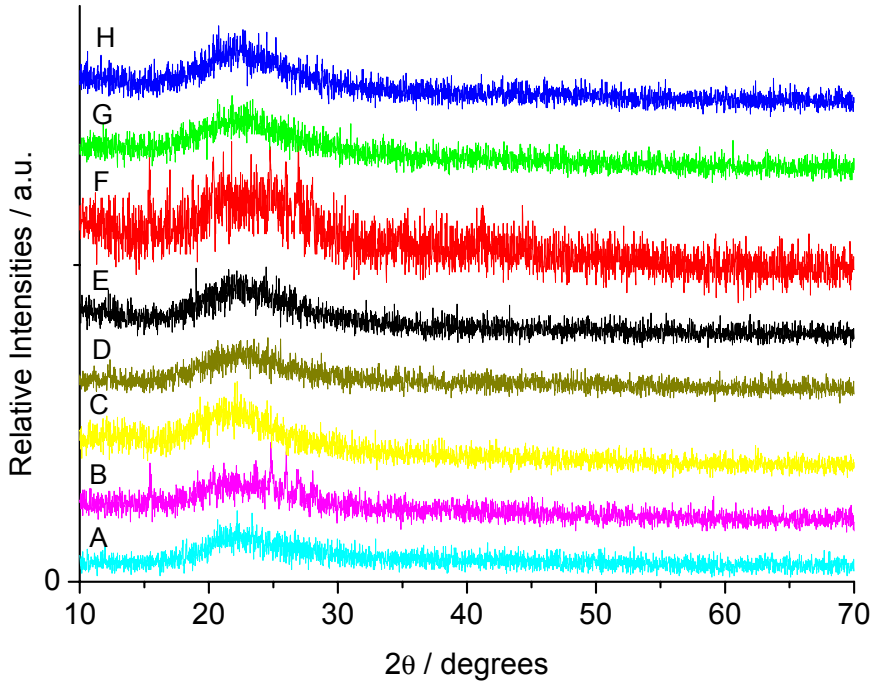

Figure S4 X-ray diffraction patterns of the hybrid materials (A) Phen-Si-Sm, (B) Phen-Si-Sm-NA, (C) Phen-Si-Sm-PMMA, (D) Phen-Si-Sm-PVP, (E) Phen-Si-Eu, (F) Phen-Si-Eu-NA, (G) Phen-Si-Eu-PMMA and (H) Phen-Si-Eu-PVP.