Electronic Supplementary Material (ESI) for CrystEngComm.

Electronic Supplementary Material

Facile synthesis of polypyrrole nanoparticles with tunable conductivity for efficient electromagnetic wave absorption and shielding performance

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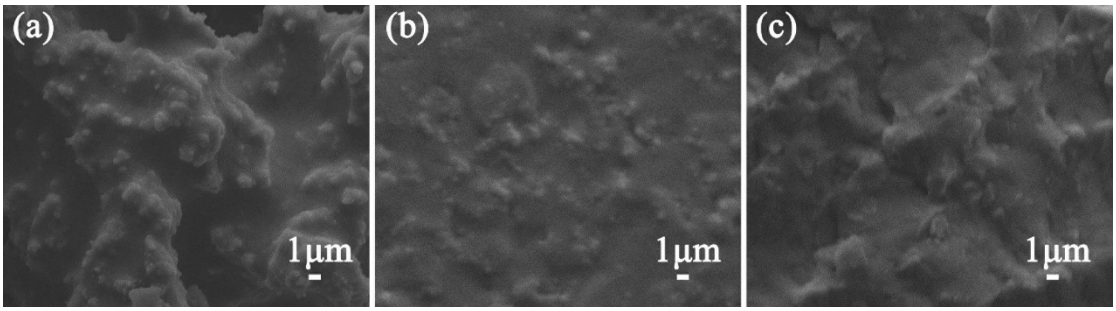

Fig. S1 SEM images of fracture section of PPy/TPU membrane: (a) $PPy_{1:1}$/TPU, (b) $PPy_{1:2}$/TPU and (c) $PPy_{1:3}$/TPU.

Fig. S2 The digital photograph of flexible PPy /TPU platelet.

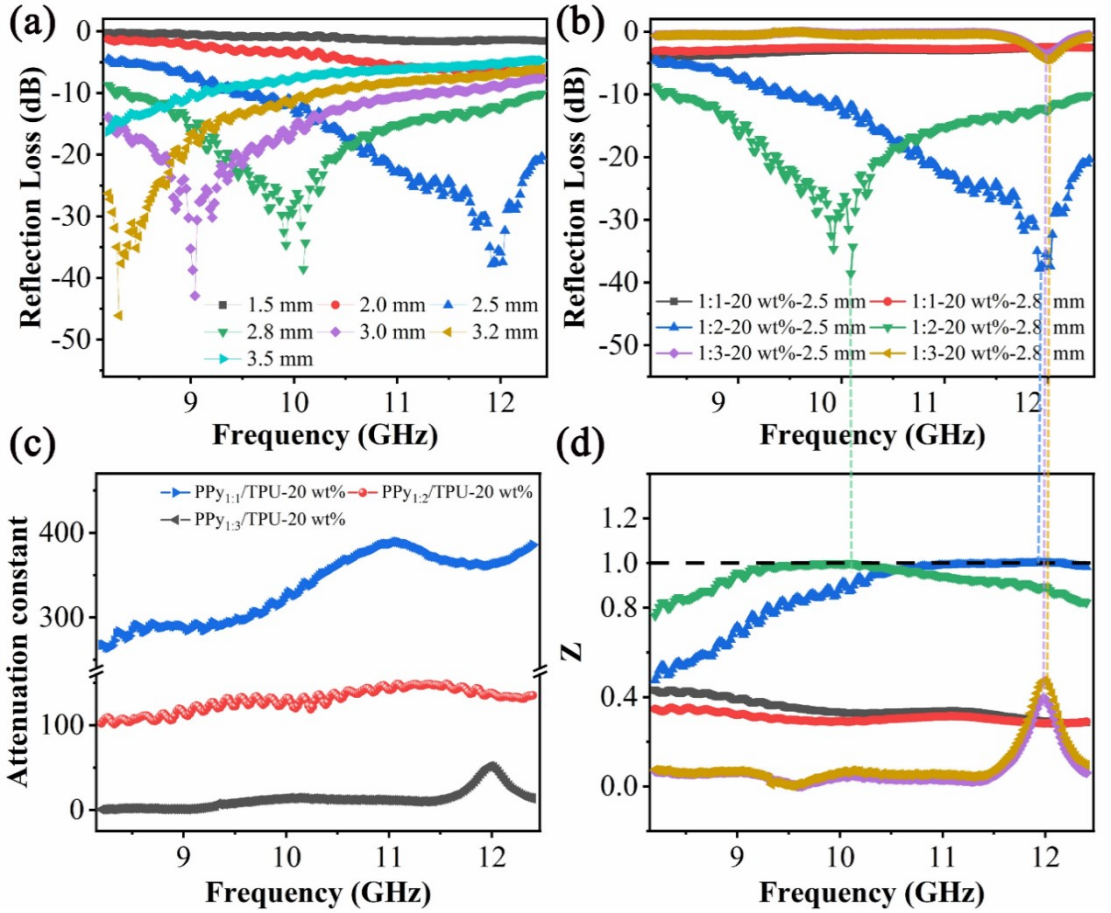

Fig. S3 (a) RL diagrams of $PPy_{1:2}$/TPU (20 wt%) among various thicknesses, (b) RL diagrams of PPy/TPU (20 wt%) within different molar ratios, (c) attenuation constant and (d) impedance matching coefficient of PPy/TPU composites under different molar ratios at a filler loading of 20 wt%.

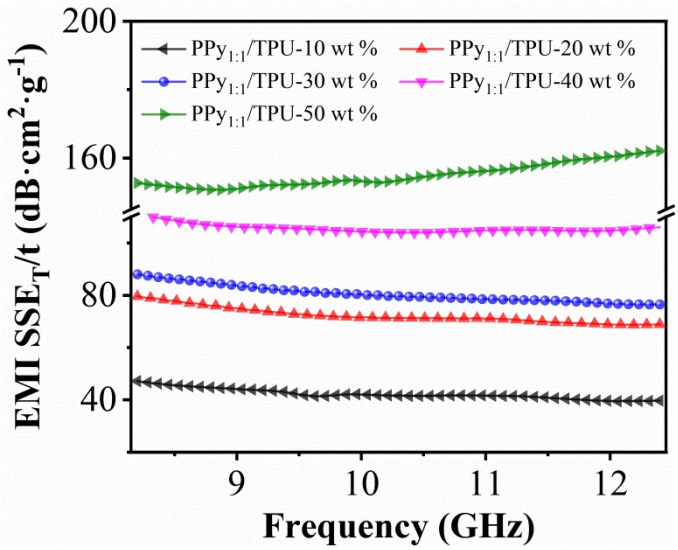

Fig. S4 EMI SSE/t of $PPy_{1:1}$/TPU composite within various filler loadings.

Table. S1 Density and thickness of PPy/TPU composites at different filler loadings.

Samples / Filler Content	$PPy_{1:1}$/TPU ($g \cdot cm^{-3}$)	Thickness mm	$PPy_{1:2}$/TPU ($g \cdot cm^{-3}$)	Thickness mm	$PPy_{1:3}$/TPU ($g \cdot cm^{-3}$)	Thickness mm
0 wt%	1.103	1.51	1.103	1.51	1.103	1.51
10 wt%	1.127	1.59	1.129	1.65	1.140	1.50
20 wt%	1.165	1.52	1.174	1.43	1.180	1.41
30 wt%	1.199	1.53	1.201	1.58	1.211	1.44
40 wt%	1.206	1.70	1.219	1.28	1.238	1.33
50 wt%	1.230	1.80	1.246	1.28	1.277	1.90

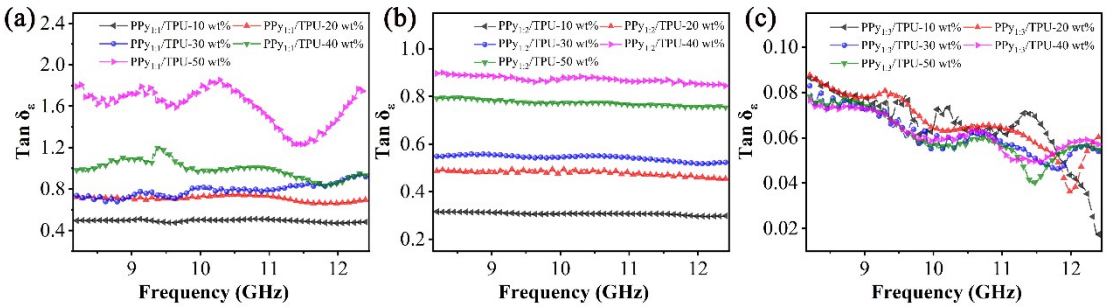

Fig. S5 Dielectric loss tangent of PPy/TPU composites within different filler loadings: (a) $PPy_{1:1}$/TPU, (b) $PPy_{1:2}$/TPU and (c) $PPy_{1:3}$/TPU.