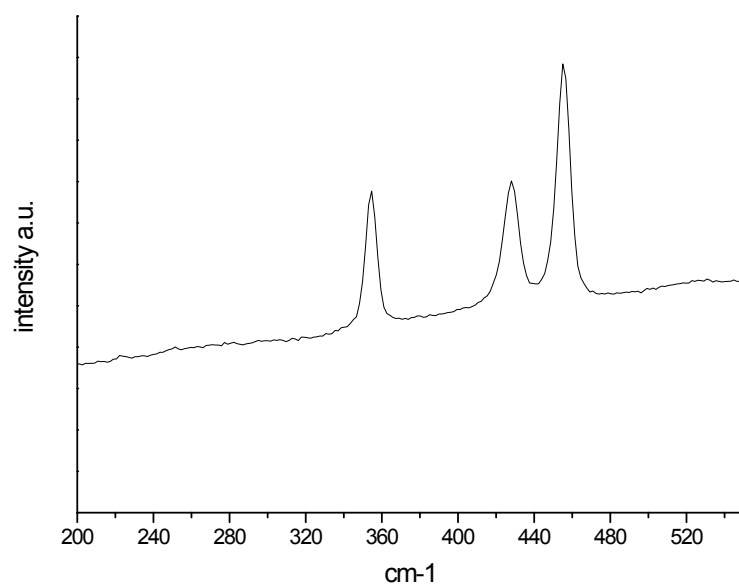
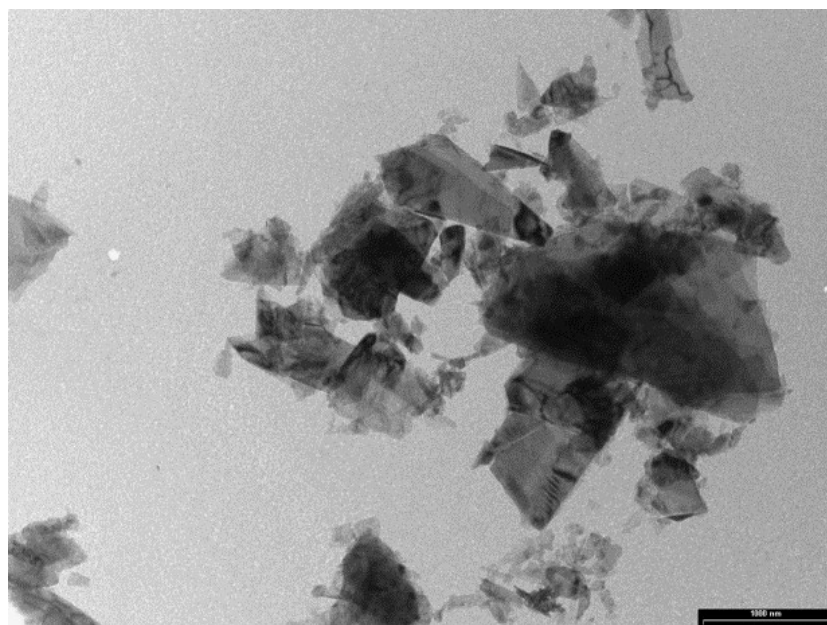
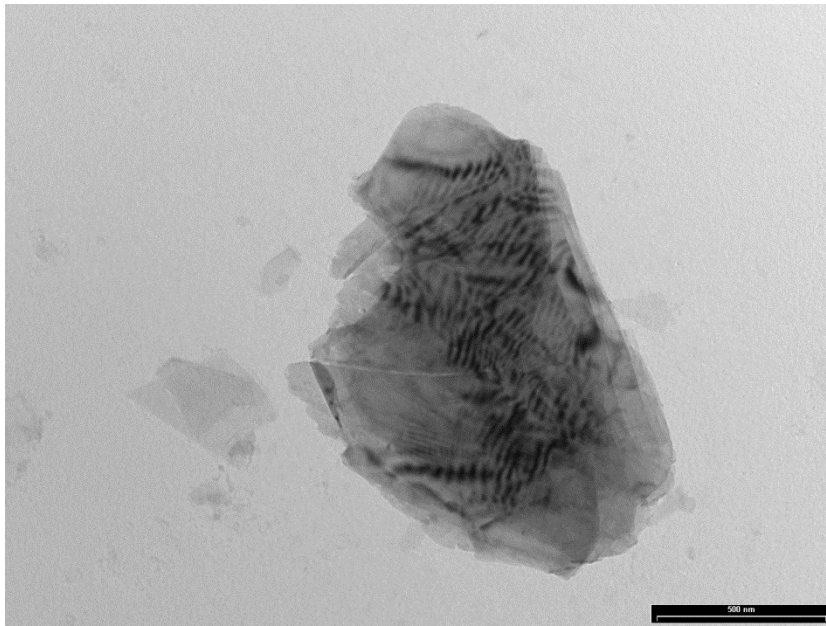


Electronic Supporting Information

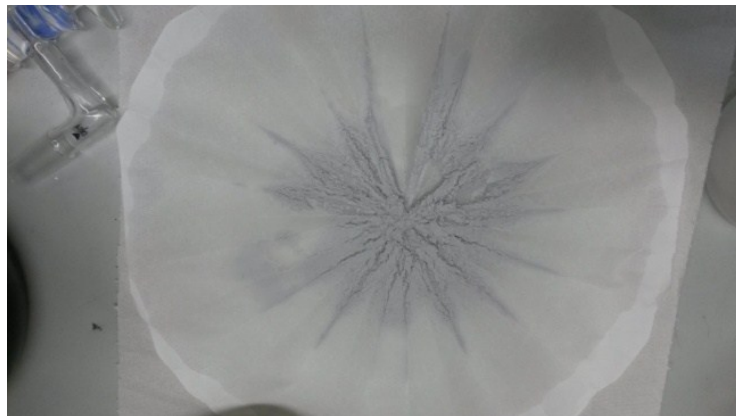


SF1: Raman spectrum of 2D BP dried

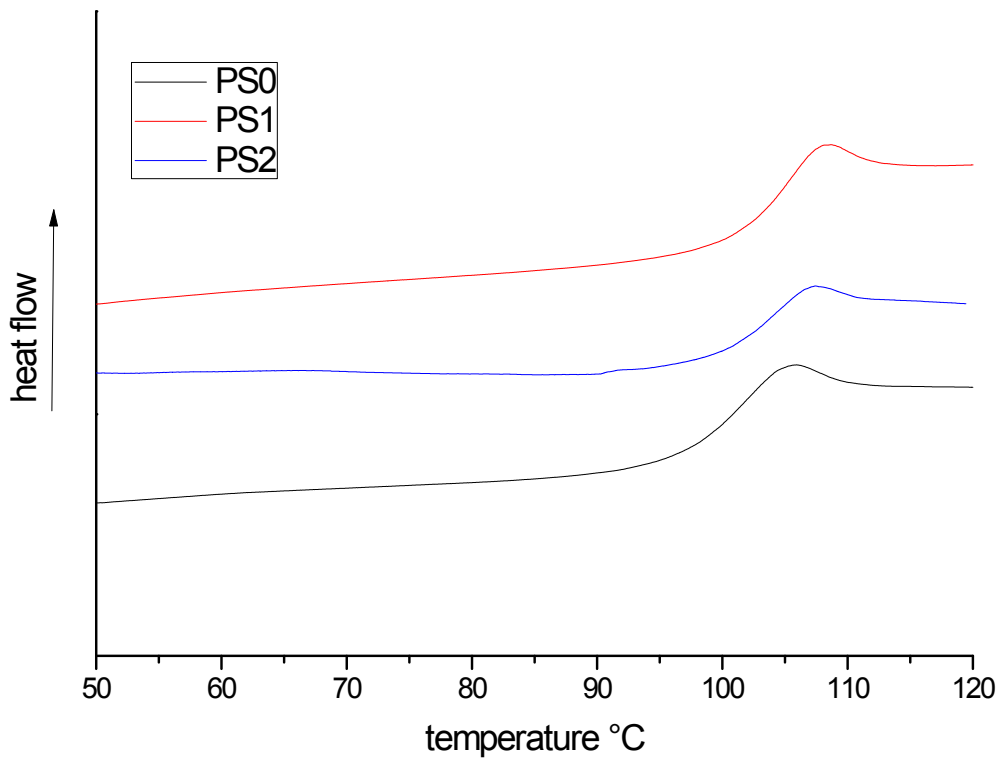




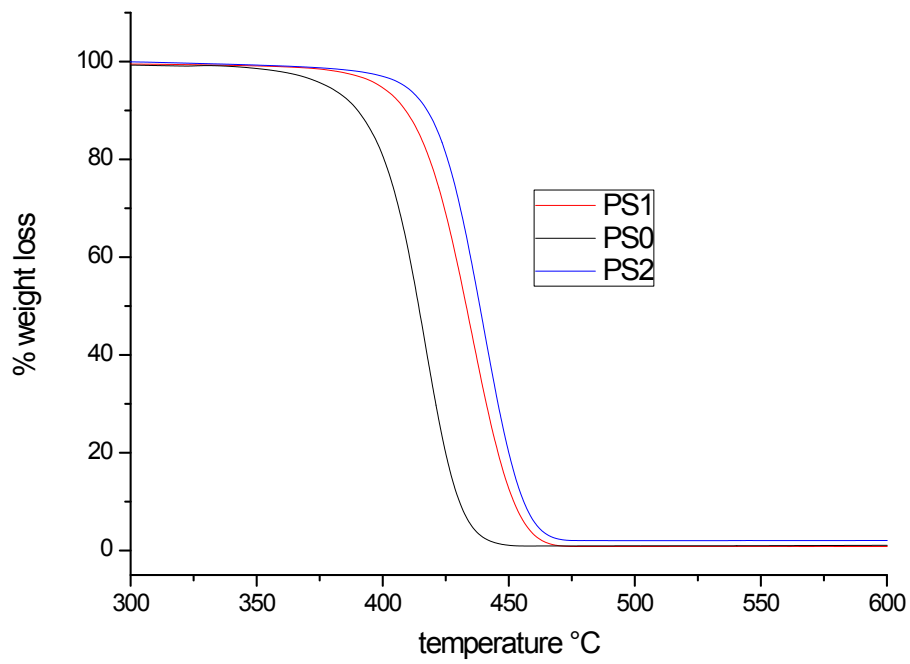
SF2: Bright-field TEM images of dried 2D BP



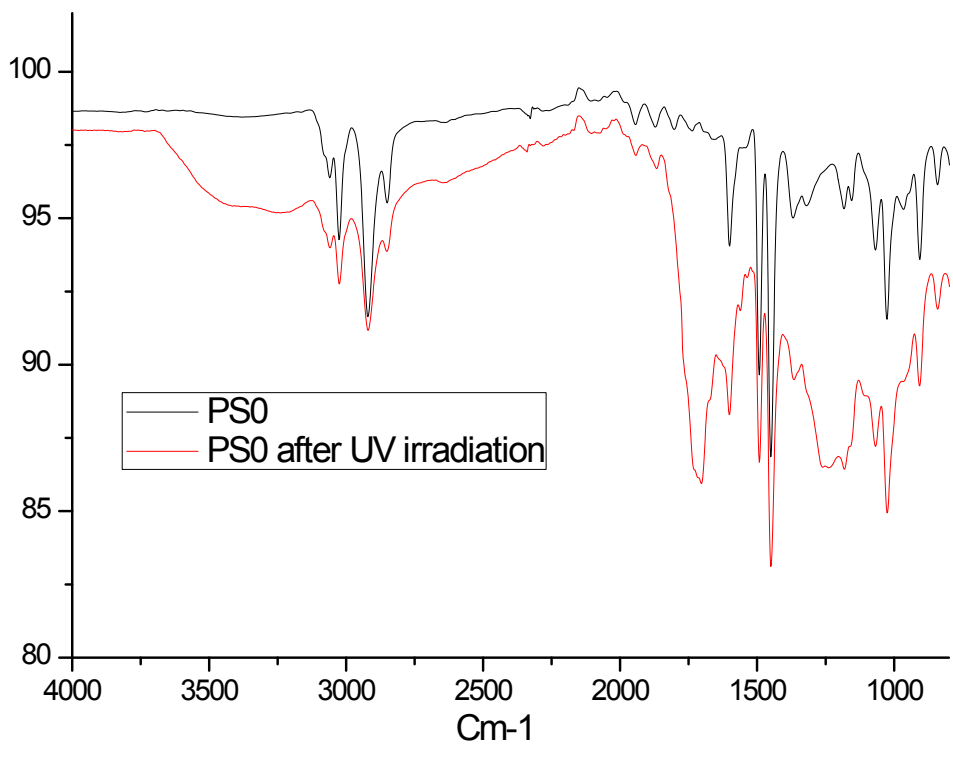
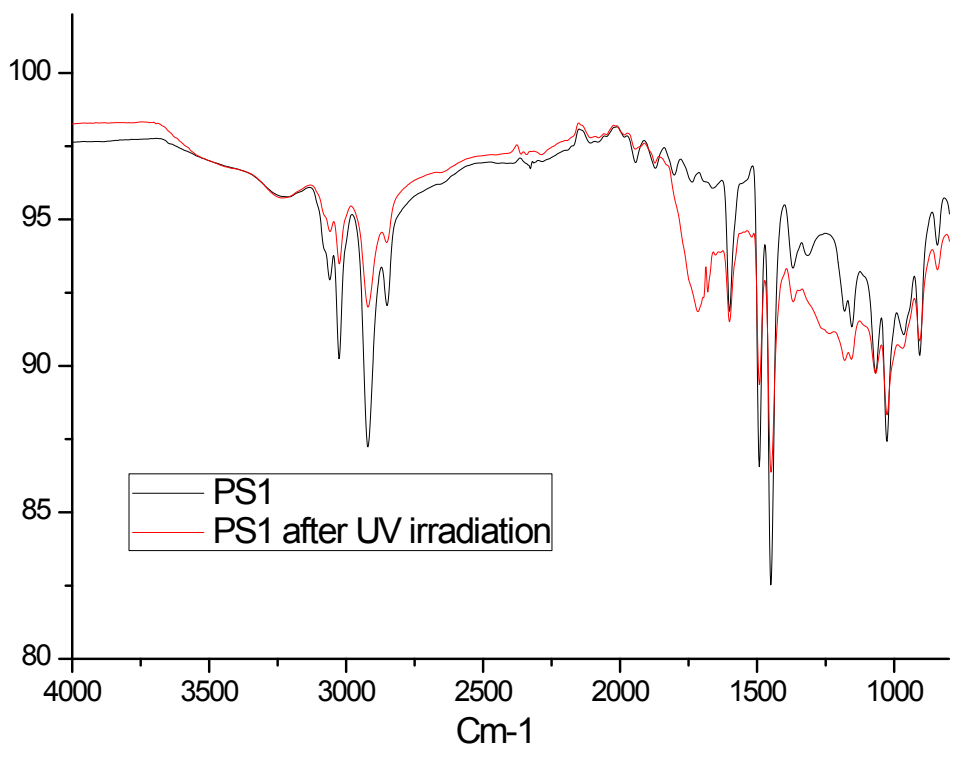
SF3: Powdery composite (PS1)'s picture as obtained by solutions blending and co-precipitation approach



SF4: DSC curves of blank experiment (PS0) and composites with 2D BP nanolayers (samples PS1 and PS2)



SF5: TGA curves of blank experiment (PS0) and composites with 2D BP nanolayers (samples PS1 and PS2)



SF6: ATR Spectra of samples PS0 and PS1 before and after UV irradiation