

Supporting Information

Influence of Various Carbon Fillers Dimensionality on Viscoelastic Properties of Polyethylene Terephthalate Matrix

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S1. Morphological and Crystallinity Characterizations

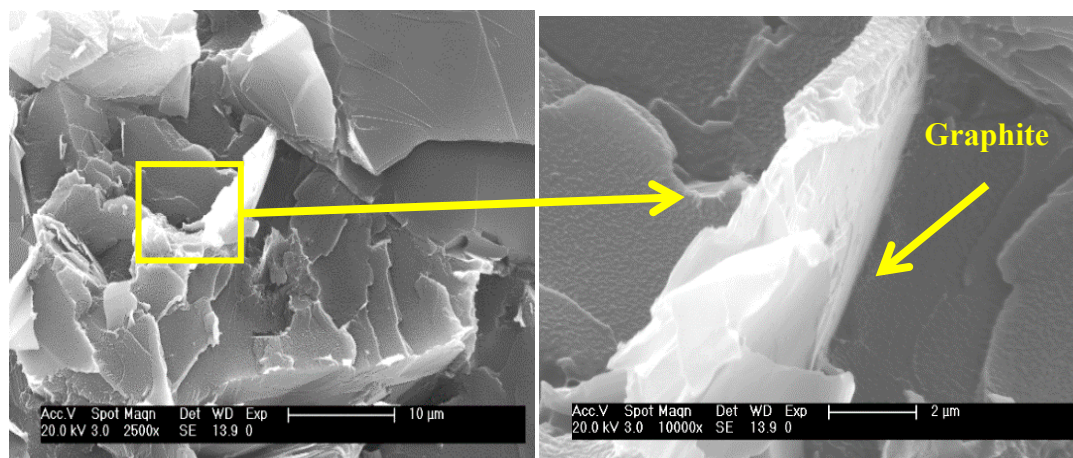


Figure S1. Fracture surfaces morphology of PET/graphite micro-composites at low and high magnifications with 2 wt. % graphite.

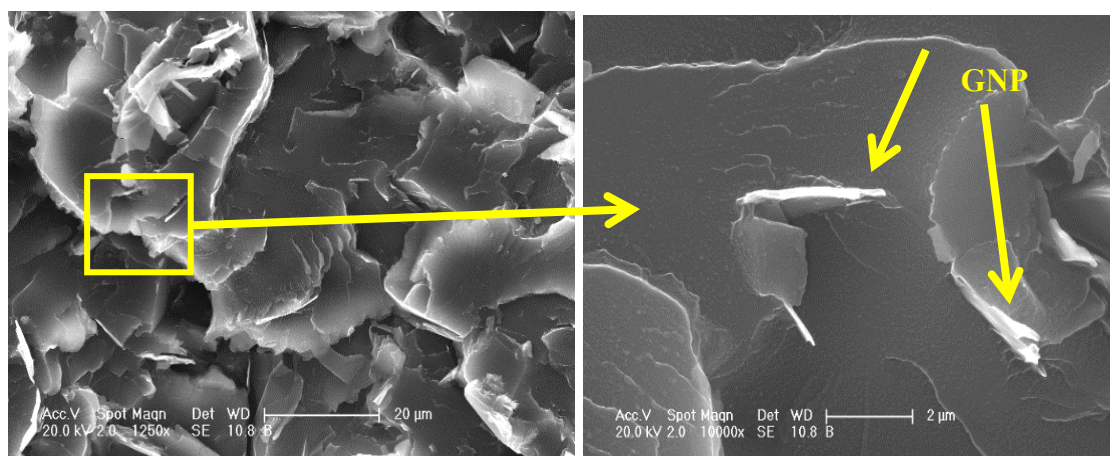


Figure S2. Fracture surfaces morphology of PET/GNP nanocomposites at low and high magnifications with 2 wt. % GNP.

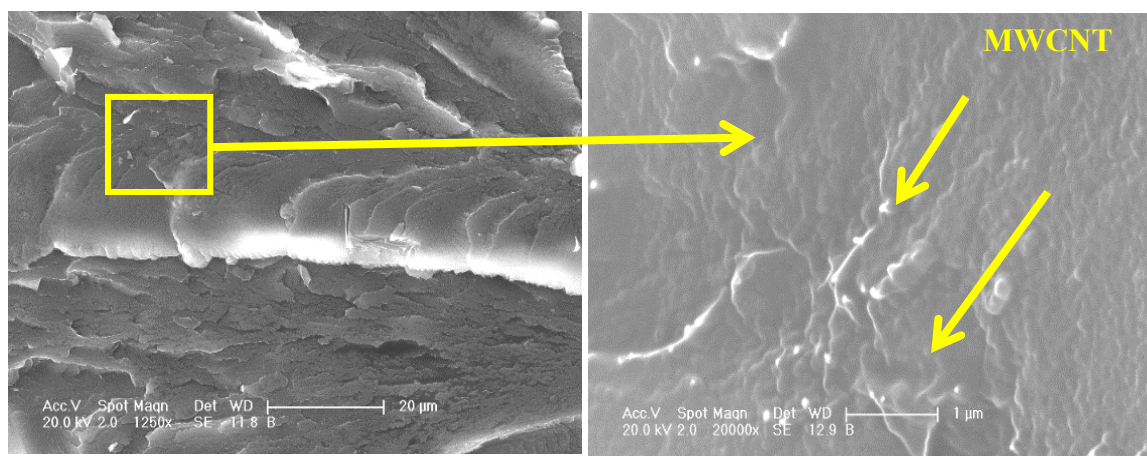


Figure S3. Fracture surfaces morphology of PET/ MWCNT nanocomposites at low and high magnifications with 1 wt. % MWCNT.

Table S1. Comparison of the degree of crystallinity

Samples	Degree of crystallinity (%)
Pure PET	11.8 ± 0.8
2 wt.% Graphite	15.6 ± 1.6
2 wt.% GNP	19.3 ± 0.3
2 wt.% MWCNT	22.5 ± 1.8

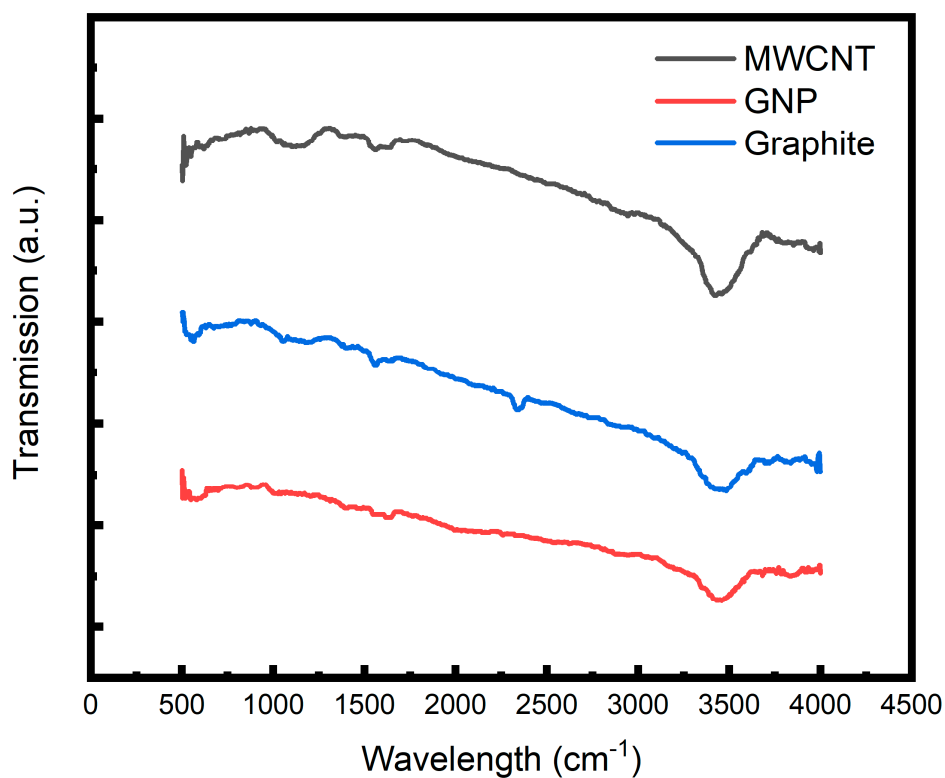


Figure S4. FTIR spectra of investigated carbon fillers i.e. MWCNT, GNP and Graphite.

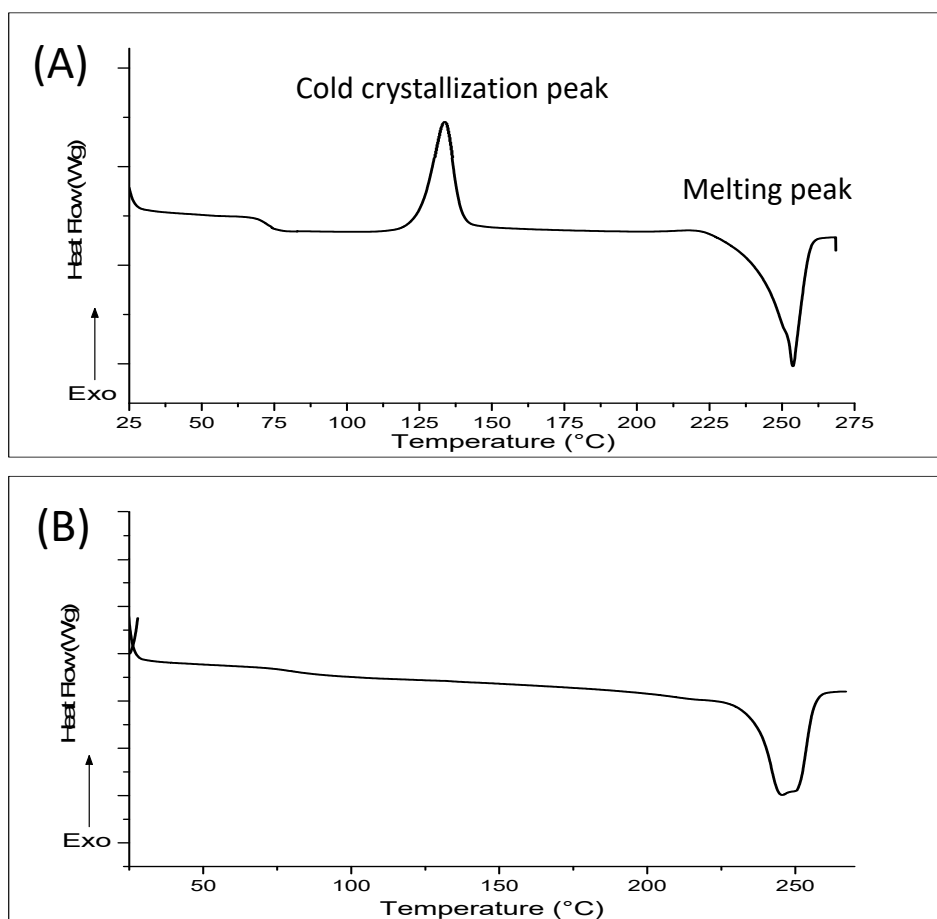


Figure S5. DSC curves (heating/cooling rate 10 °C/min) for PET; (A) showing the first heating scan, (B) the second heating scan.

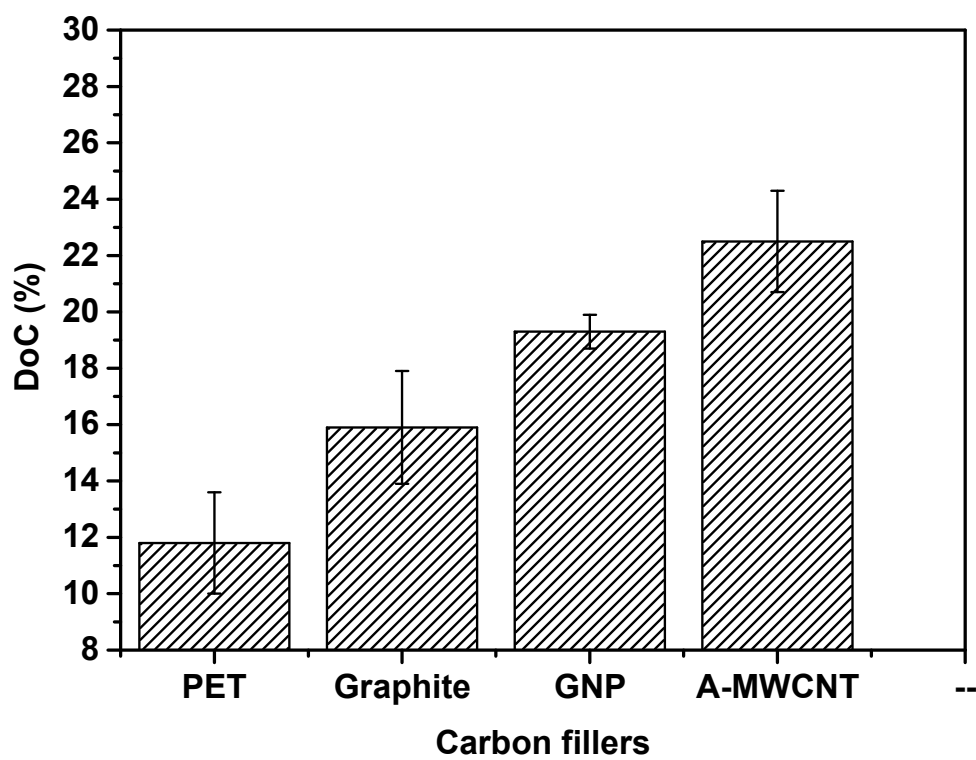


Figure S6. Degree of crystallinity (DoC) of PET/carbon composites at 2 wt. % carbon fillers.

S2. Dynamical Mechanical Properties

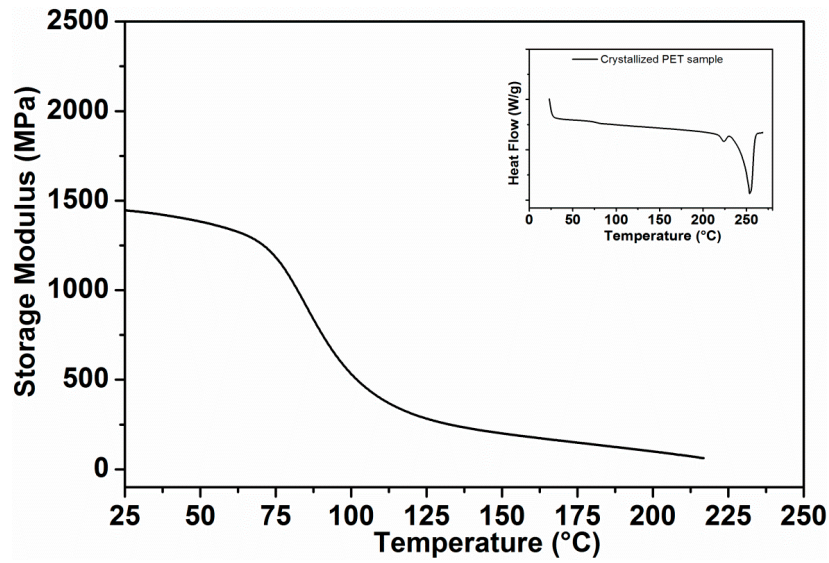


Figure S7. Second DMTA curve of dynamic storage modulus (E') as a function of temperature for the PET matrix specimen shown in Figure 2 (in the manuscript). The insert shows first heating run on DSC for the same (now crystallized) PET specimen.

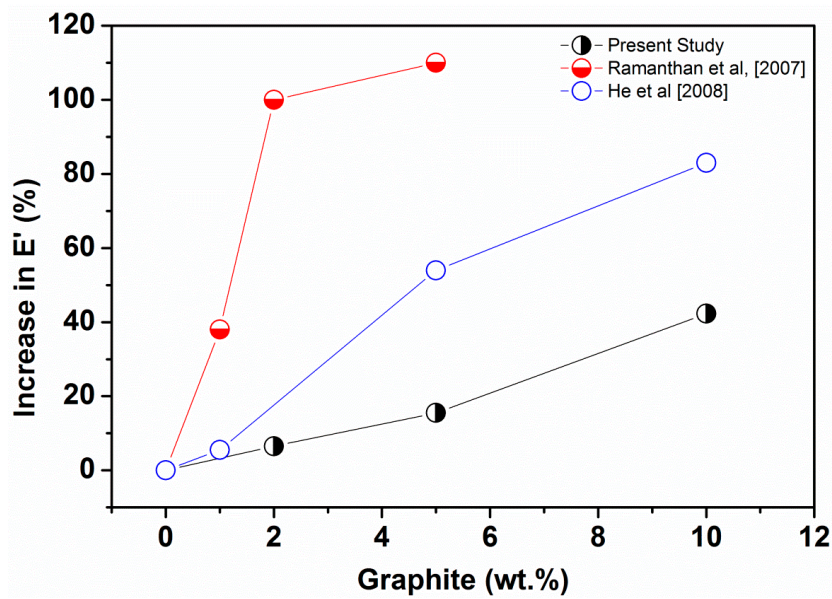


Figure S8. Comparison of E' data from reference [1] (PMMA matrix) and [2] (PVDF matrix) with the present experimental results.

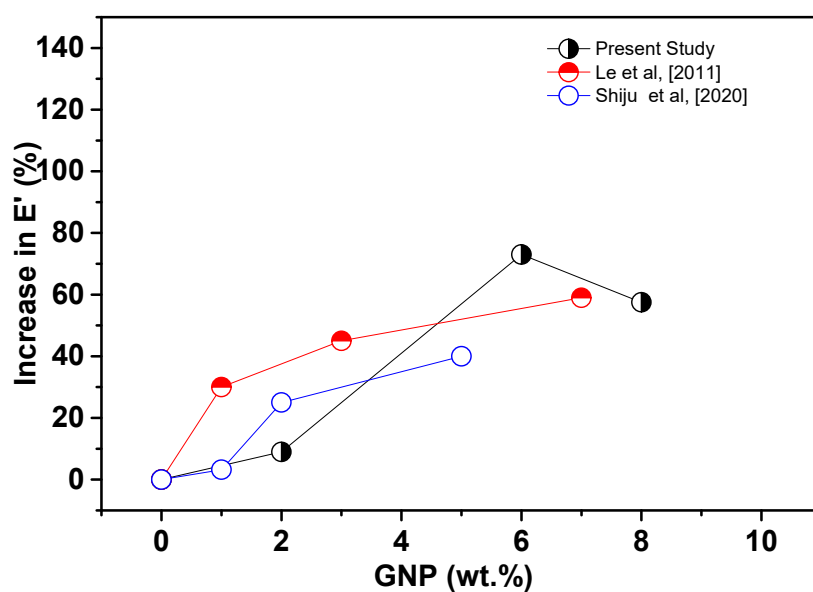


Figure S9. Comparison of E' data from reference [3] (PMMA matrix) and [4] (PET matrix) with the present experimental results.

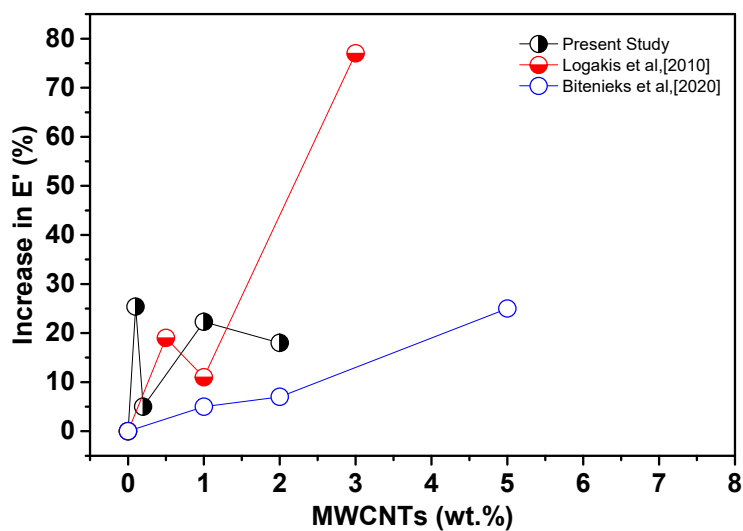


Figure S10. Comparison of E' data from references [5] (PP matrix) and [6] (PE matrix) compared with the present experimental results.

References:

- [1] T. Ramanathan, S. Stankovich, D. Dikin, H. Liu, H. Shen, S. Nguyen, and L. Brinson, "Graphitic nanofillers in PMMA nanocomposites—an investigation of particle size and dispersion and their influence on nanocomposite properties," *Journal of Polymer Science Part B: Polymer Physics*, vol. 45, pp. 2097-2112, 2007.
- [2] F. He, J. Fan, and S. Lau, "Thermal, mechanical, and dielectric properties of graphite reinforced poly (vinylidene fluoride) composites," *Polymer Testing*, vol. 27, pp. 964-970, 2008.
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- [5] Bitenieks, J., Merijs Meri, R., Zicans, J., & Buks, K. (2020). Dynamic Mechanical, Dielectrical, and Rheological Analysis of Polyethylene Terephthalate/Carbon Nanotube Nanocomposites Prepared by Melt Processing. *International Journal of Polymer Science*, 2020.
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