

Electronic supplementary information

Multidimensional Structure and Enhancement Performance of Modified Graphene/Carbon Nanotube Assemblies in Tribological Properties of Polyimide Nanocomposites

Yuanshi Xin, Tongsheng Li,* Fanglin Xu and Mingming Wang

*State Key Laboratory of Molecular Engineering of Polymers, Department of
Macromolecular Science, Fudan University, Shanghai, 200433, P. R. China.*

*Corresponding author. Tel & Tax: +86-021-51630401; E-mail: lits@fudan.edu.cn

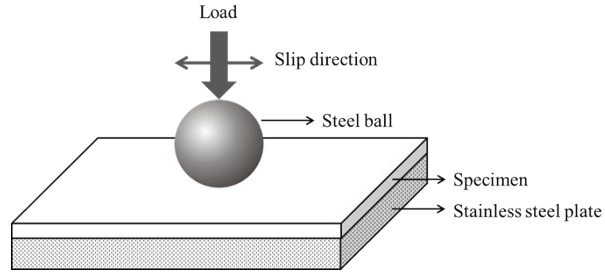


Fig. S1 Schematic diagram of the contact configuration of the reciprocating friction and wear testing machine.

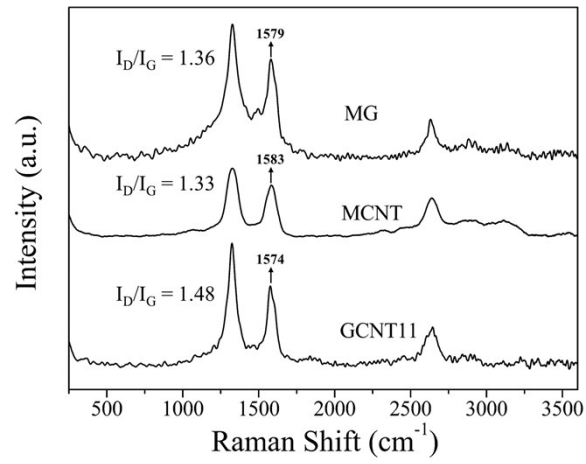


Fig. S2 Raman spectra of MG, MCNT and GCNT11.

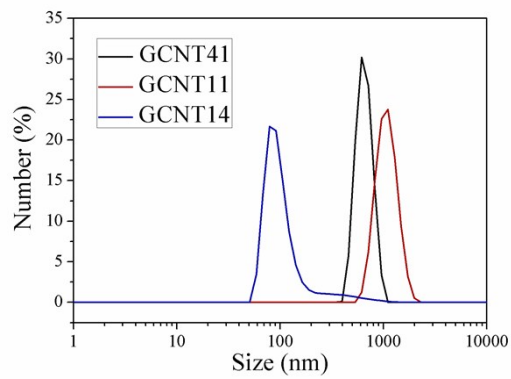


Fig. S3 Size distribution by number of GCNT41, GCNT11 and GCNT14.

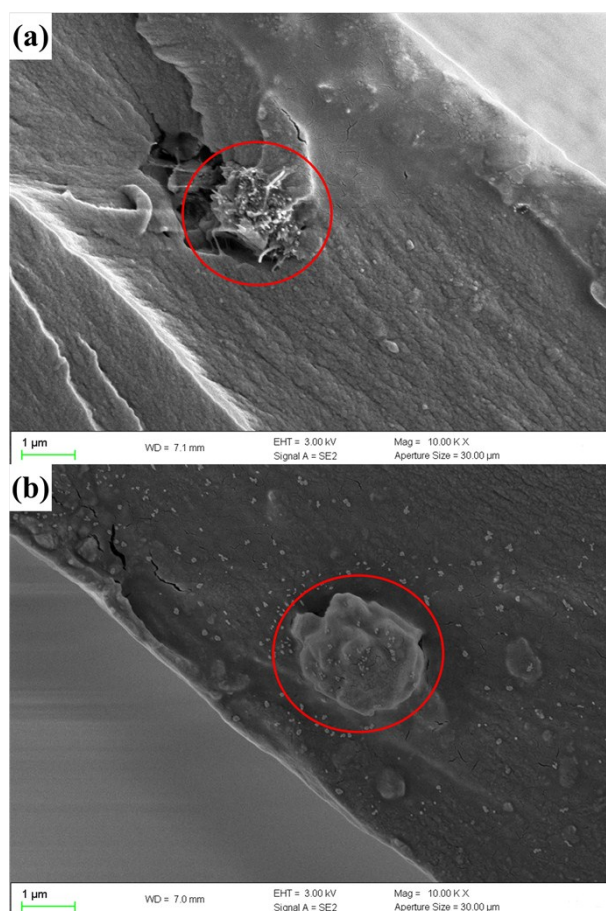


Fig. S4 FESEM images showing (a) half-open graphene-CNT ball and (b) intact graphene-CNT ball outside the fracture surface of GCNT41/PI specimen.

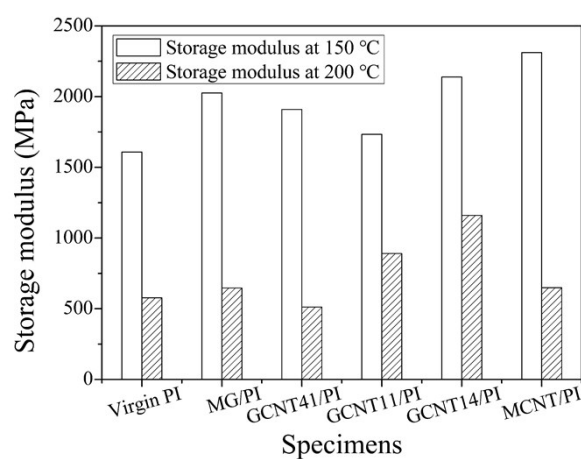


Fig. S5 Storage modulus of virgin PI and PI composites at 150 °C and 200 °C.

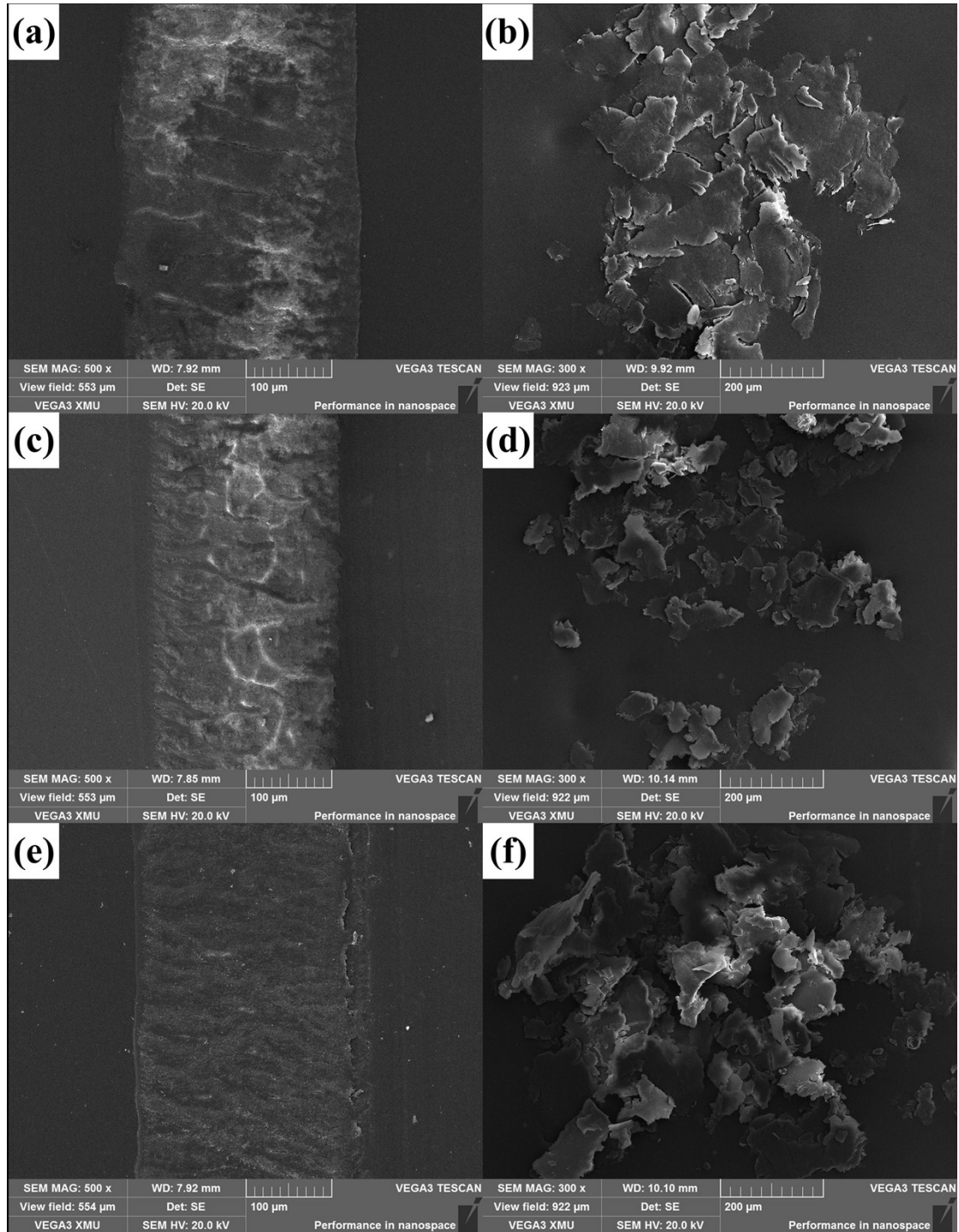


Fig. S6 SEM images of worn surfaces of (a) virgin PI, (c) MG/PI and (e) MCNT/PI specimens. SEM images of wear debris of (b) virgin PI, (d) MG/PI and (f) MCNT/PI specimens.