

Germanium quantum dot/nitrogen-doped graphene nanocomposite for high-performance bulk heterojunction solar cells

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Supporting information



Fig. S1 TEM image of GeQD/NGr nanocomposite.

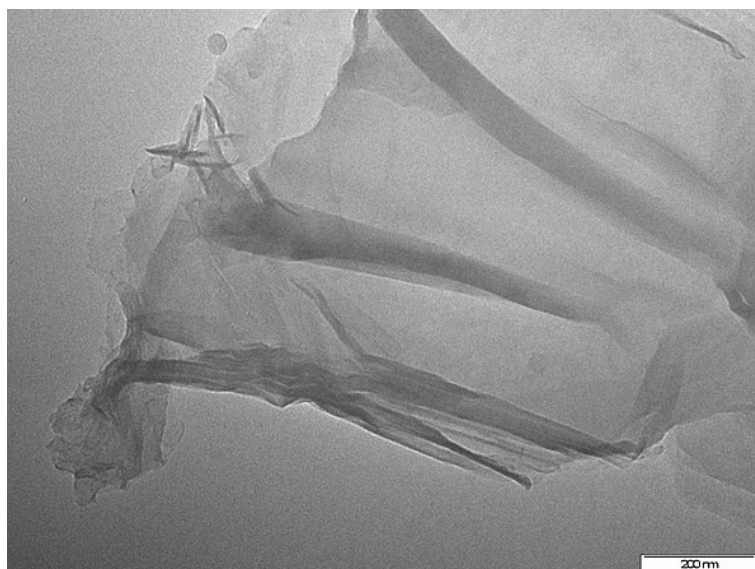


Fig. S2 TEM image of NGr.

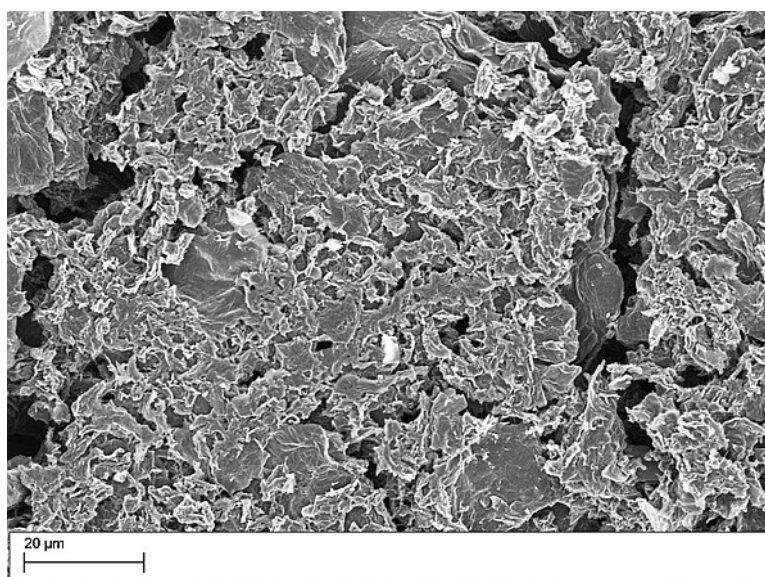


Fig. S3 SEM image of NGr.

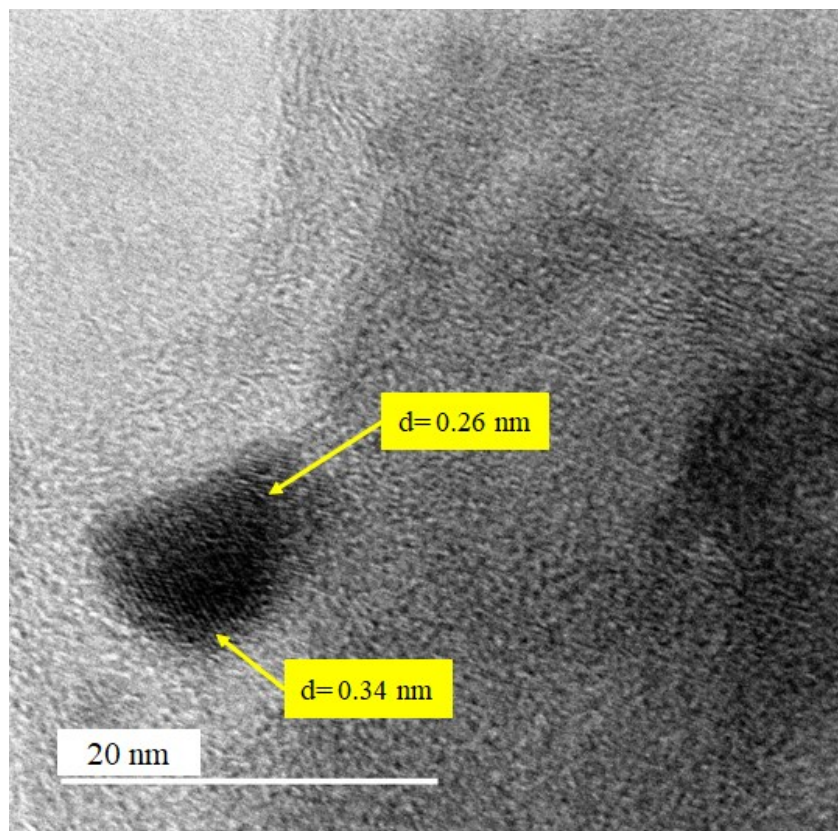


Fig. S4 HR-TEM image of the GeQD/NGr nanocomposite.

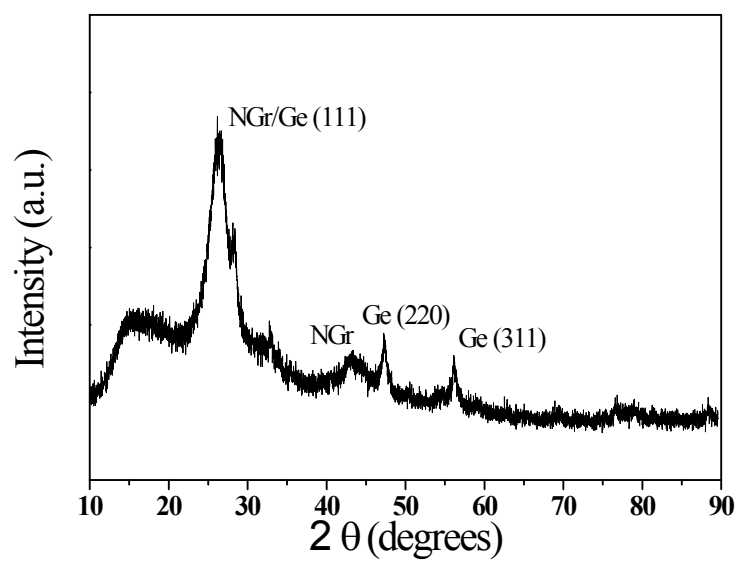


Fig. S5 XRD pattern for the GeQD/NGr nanocomposite.

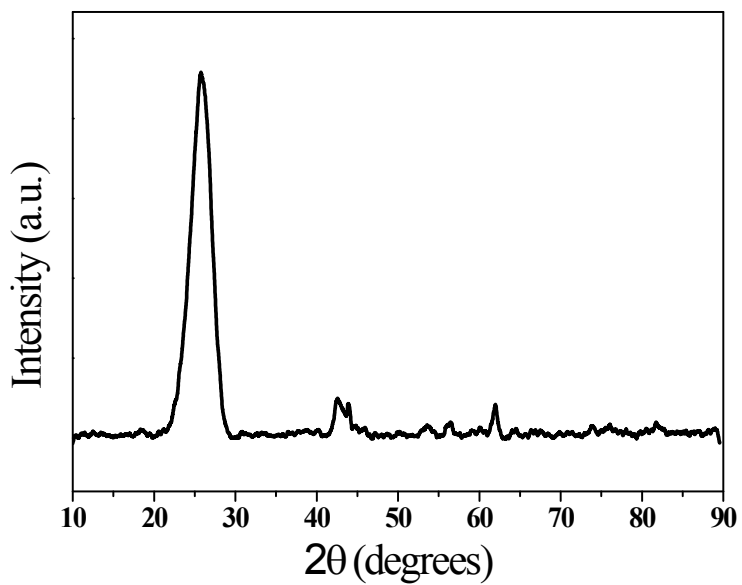


Fig. S6 XRD pattern of NGr.

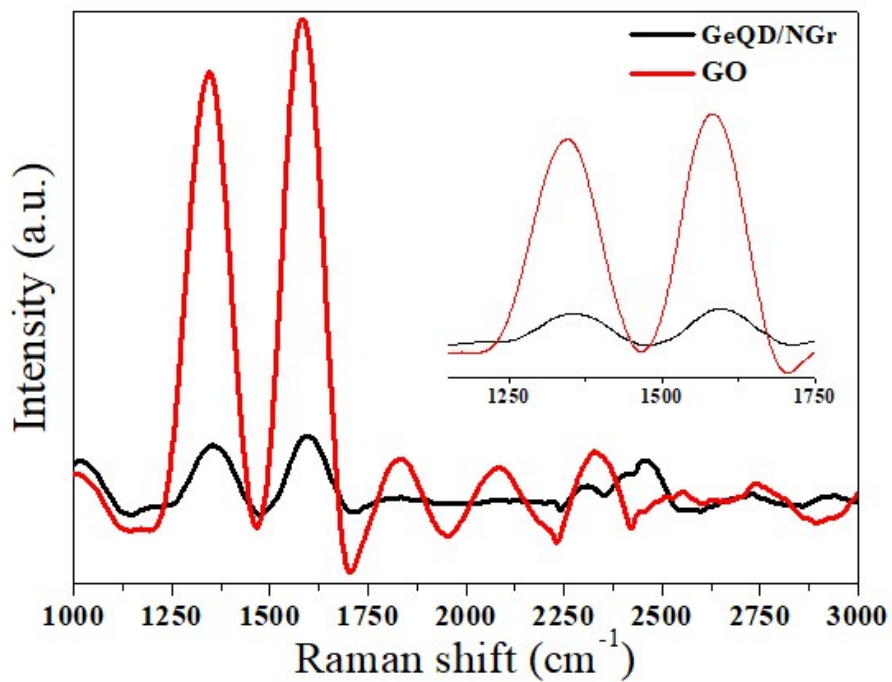


Fig. S7 Raman spectra of the GeQD/NGr nanocomposite and GO.

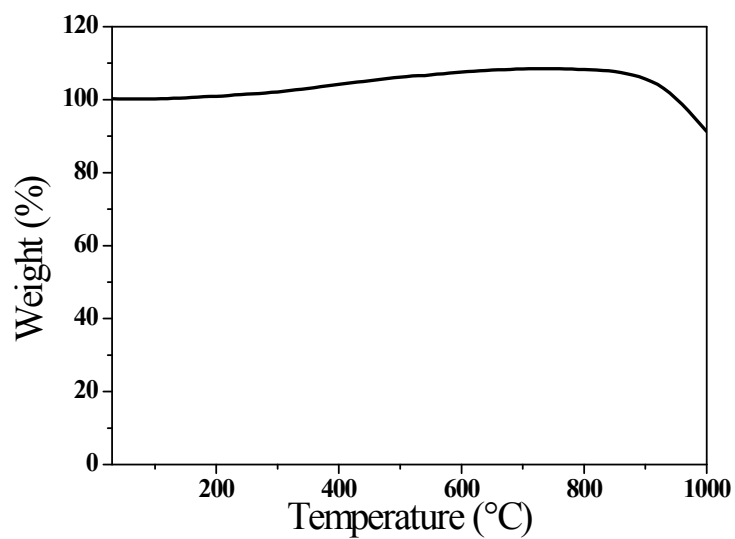


Fig. S8 TGA thermogram of GeQD/NGr nanocomposite.

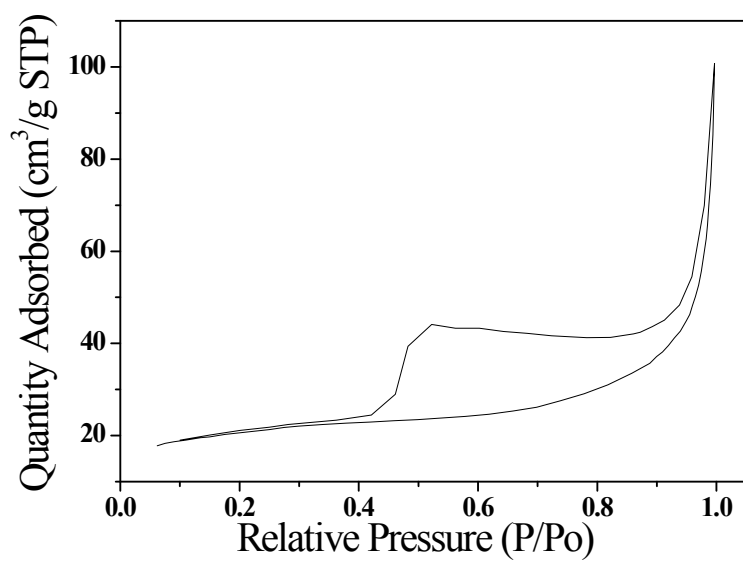


Fig. S9 N₂ adsorption isotherm of the GeQD/NGr nanocomposite.

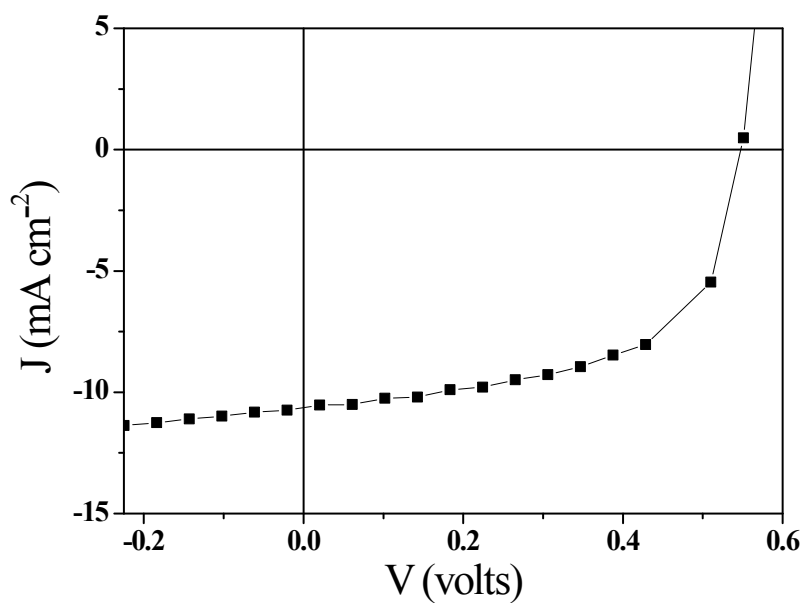


Fig. S10 Current-voltage characteristics of BHJ-SCs with NGr (3 wt.%) in the active layer.

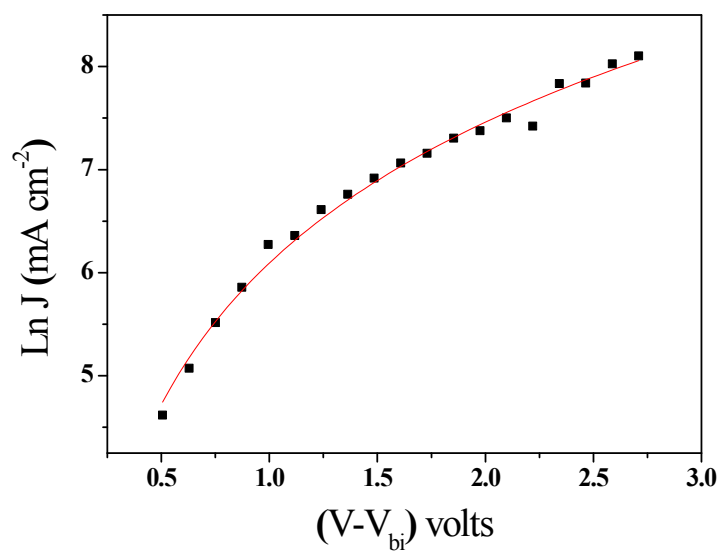


Fig. S11 Space charge limited currents of the BHJ-SCs with NGr at 3 wt.% in the active layer.