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Enhanced Thermoelectric Performance in Graphene Quantum Dots/Te Nanowires Flexible Hybrid Film

Graphene has been proved to be positive for reducing thermal conductivity in many thermoelectric nanocomposites. Here we prepared graphene quantum dots (GQDs) /Te nanowires flexible hybrid films on mica substrate through drop-cast method. After being annealed in H₂/Ar atmosphere, the hybrid films show enhanced thermoelectric performance due to the redox-reaction between GQDs and Te nanowires during annealing process. The thermoelectric performance of hybrid films can be further adjusted via changing size and percentage of GQDs in film. This work provides insights for the synthesis of graphene-based hybrid thermoelectric films.