

Supporting Information

One-Step in Situ Ball Milling Synthesis of Polymer-Functionalized Few-Layered Boron Nitride and Its Application in High Thermally Conductive Cellulose Composites

Cuiping Yu^{†‡§}, Qichong Zhang[†], Jun Zhang[†], Renjie Geng[†], Wei Tian[†], Xiaodong Fan[†],
Yagang Yao^{*†§}

[†] Division of Advanced Nanomaterials, Key Laboratory of Nanodevices and Applications, Joint Key Laboratory of Functional Nanomaterials and Devices, CAS Center for Excellence in Nanoscience, Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, Suzhou 215123, China

[‡] The Key Laboratory of Space Applied Physics and Chemistry, Ministry of Education and Shaanxi Key Laboratory of Macromolecular Science and Technology, School of Science, Northwestern Polytechnical University, Xi'an 710072, China

[§] Division of Nanomaterials, Suzhou Institute of Nano-Tech and Nano-Bionics, Nanchang, Chinese Academy of Sciences, Nanchang 330200, China

* Corresponding author.

Email: ygyao2013@sinano.ac.cn (Y. G. Yao)



Figure S-1. The photograph of exfoliated h-BN@PDA dispersion prepared via ball milling in water.

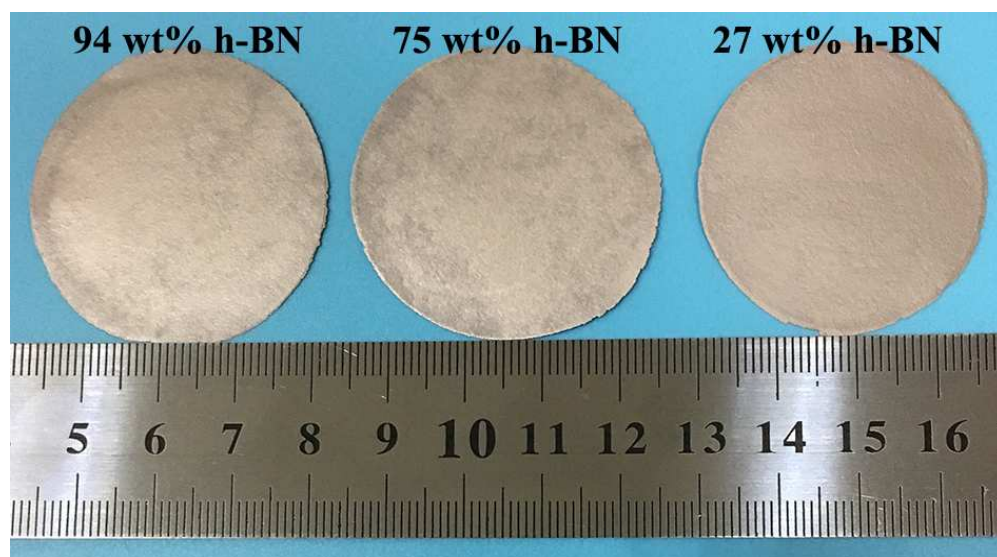


Figure S-2. The photographs of exfoliated h-BN@PDA/CNC composites with h-BN contents of 94 wt%, 75 wt%, 27 wt%, respectively.

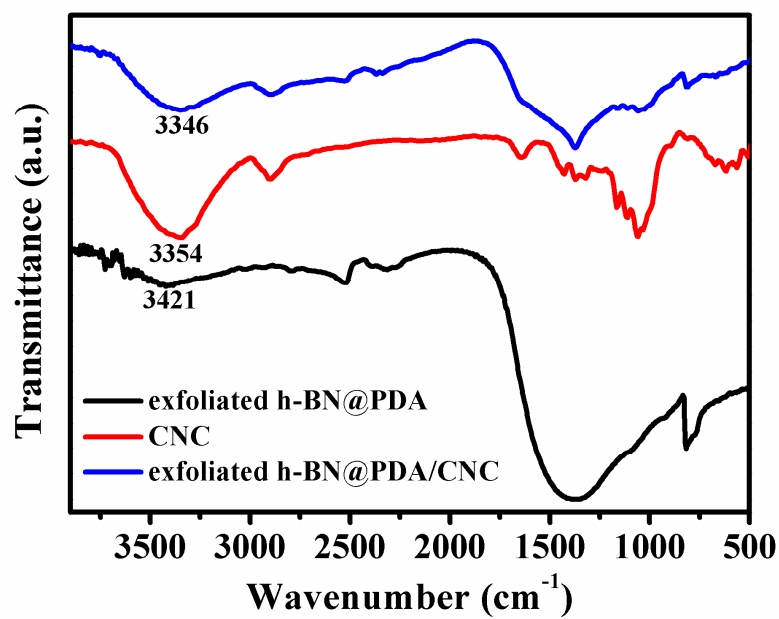


Figure S-3. FTIR spectrums of CNC, exfoliated h-BN@PDA powder and exfoliated h-BN@PDA/CNC composite.

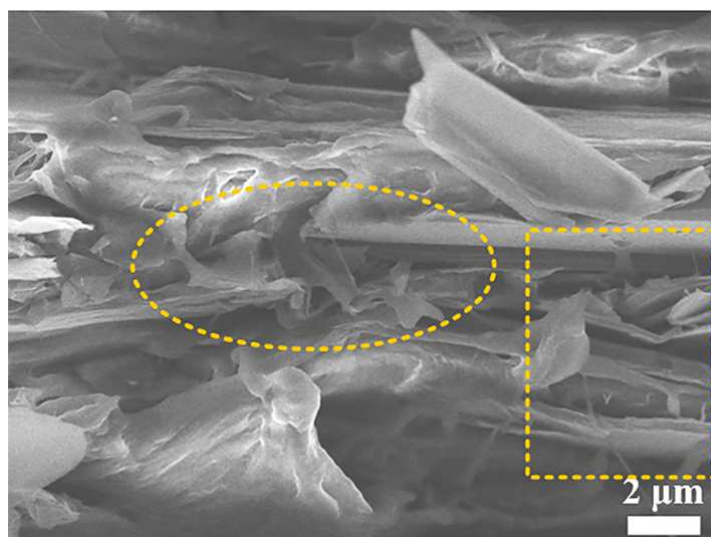


Figure S-4. SEM image of h-BN@PDA/CNC composite.

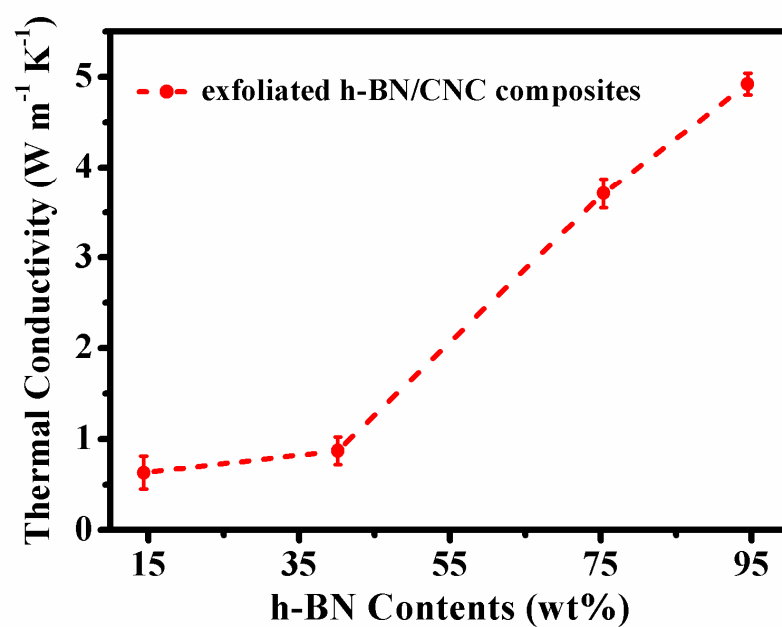


Figure S-5. The out-of-plane thermal conductivity of exfoliated h-BN@PDA/CNC composites.

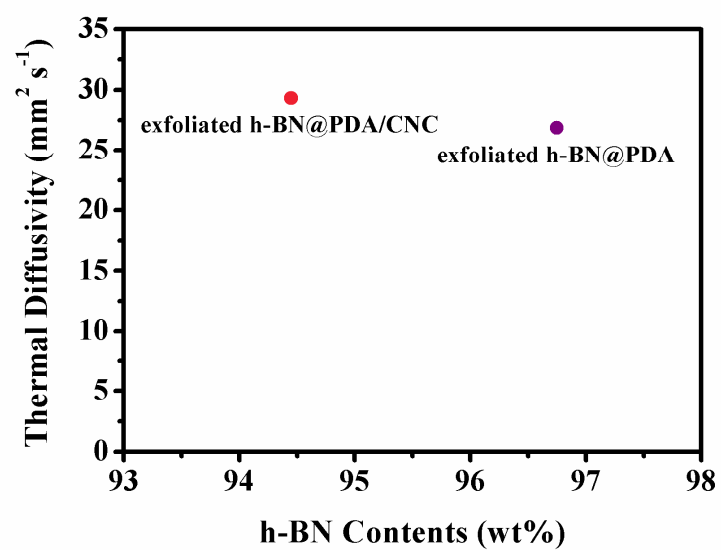


Figure S-6. The thermal diffusivity of exfoliated h-BN@PDA/CNC composites and exfoliated h-BN@PDA.

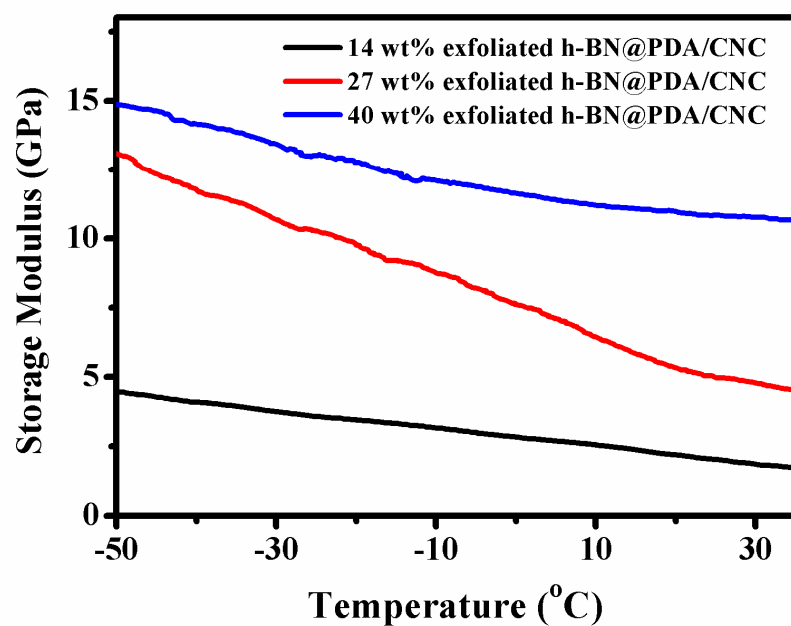


Figure S-7. Storage modulus of exfoliated h-BN@PDA/CNC composites with various h-BN contents.



Figure S-8. The photograph of exfoliated h-BN@PDA/CNC composite when folded.