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## STRATEGY TO ENHANCE THERMAL CONDUCTIVITY OF POLYMER NANOCOMPOSITES

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#### 1. Modified graphene/PA6 nanocomposites





#### 2. Graphene/carbon fiber/PVDF nanocomposites

The nano-urethane linkage-based modified graphene and carbon fibers is fabricated through the process. Interestingly, the prepared composite with PVDF matrix shows an unprecedented TC of **7.96Wm<sup>-1</sup>K<sup>-1</sup>** at a low loading of 13.8 wt%.



#### Schematic for the fabrication of NUL-Gr/CFs and NUL-Gr/CFs/PVDF composite







#### **3. FDM 3D printing of graphene/TPU composites**

The alignment of graphene induced by shear and friction force during FDM 3D printing is achieved in TPU composites.



TC<sup>⊥</sup> of TP1 and TP2





(a) Battery test setup. (b) IR images of pure TPU pack (left) and Gr/TPU pack (right). (c) temperature



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# Thank you!



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