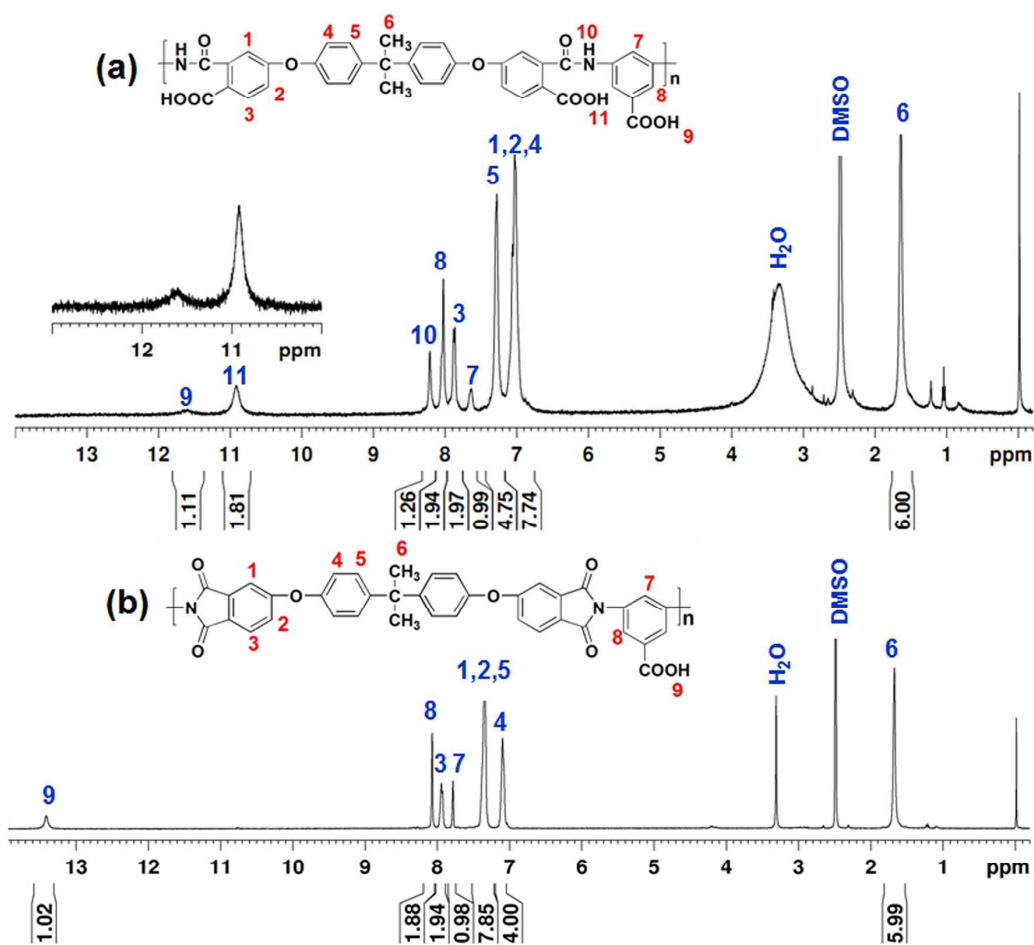


# **Supporting Information**

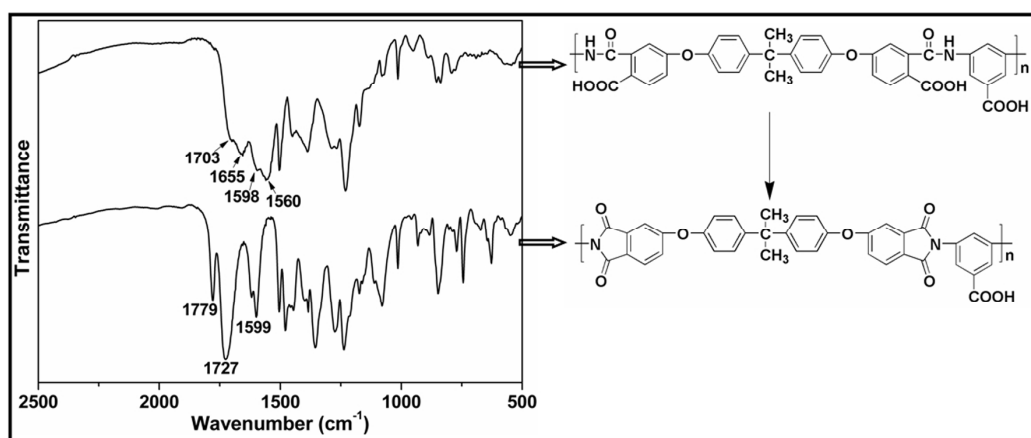
## **Preparation and Characterization of Highly Cross-linked Polyimide Aerogels Based on Polyimide Containing Trimethoxysilane Side Groups**

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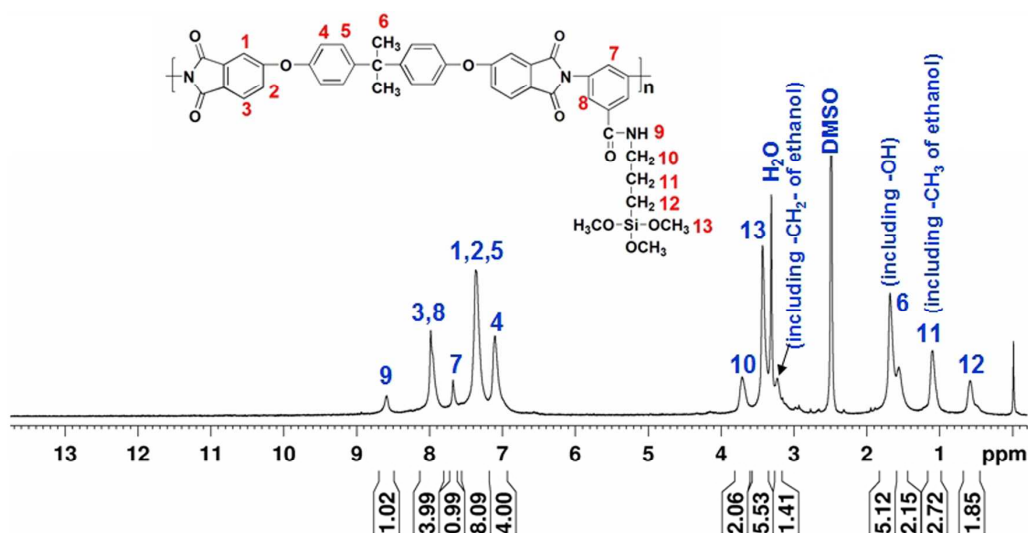
Polymers and Composites Division, Ningbo Institute of Material Technology and  
Engineering, Chinese Academy of Sciences, Ningbo, Zhejiang 315201, PR China



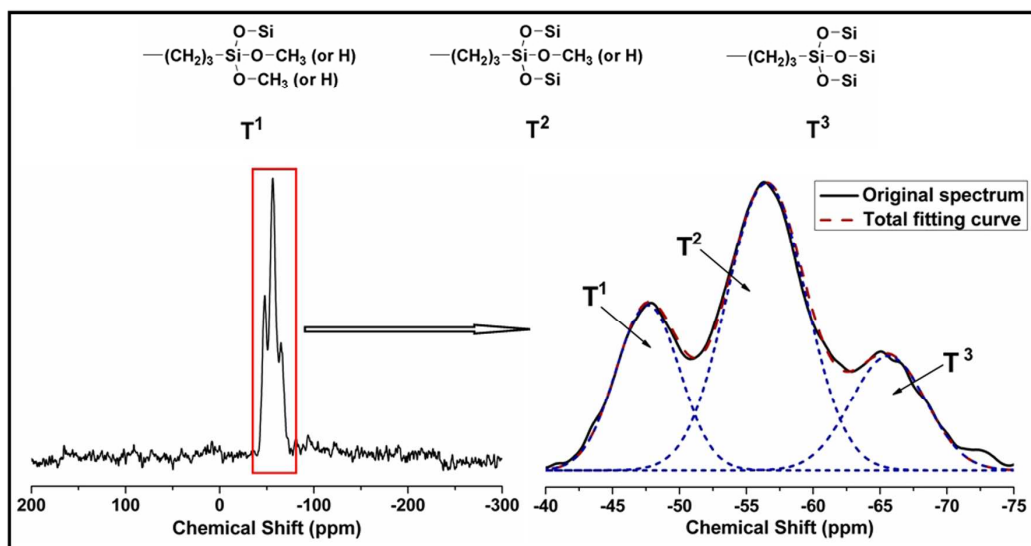
**Figure S1.** (a)  $^1\text{H}$ -NMR spectrum of poly(amic acid) containing carboxylic acid side groups; (b)  $^1\text{H}$ -NMR spectrum of polyimide containing carboxylic acid side groups.



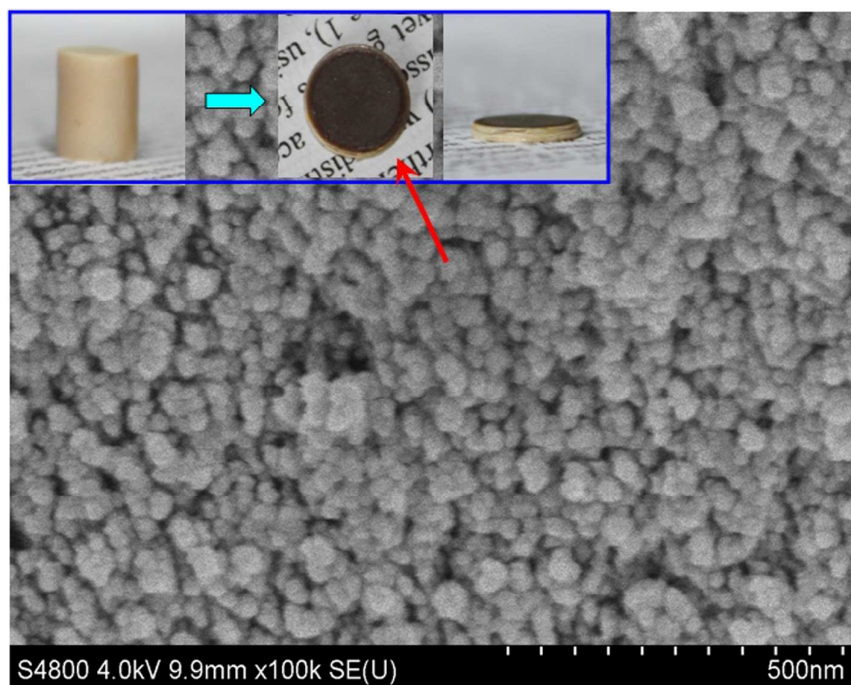
**Figure S2.** FT-IR spectra of polyimide containing carboxylic acid side groups and its intermediate poly(amic acid) containing carboxylic acid side groups.



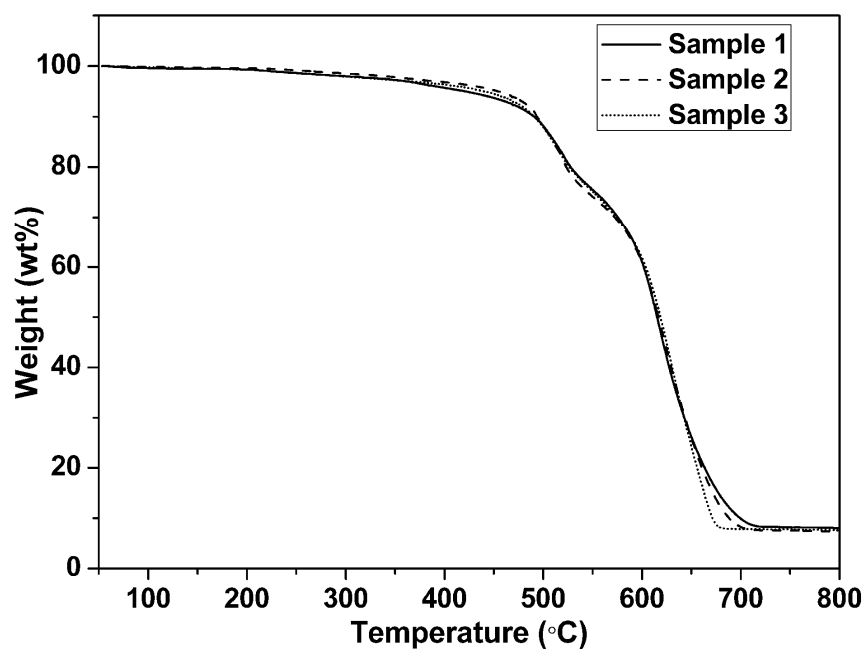
**Figure S3.**  $^1\text{H}$ -NMR spectrum of polyimide containing trimethoxysilane side groups. (Polyimide containing trimethoxysilane side groups used for  $^1\text{H}$ -NMR measurement was prepared by precipitating its DMF solution into ethanol and then drying the precipitate under vacuum at room temperature, so the signals of ethanol were also detected in its  $^1\text{H}$ -NMR spectrum. In addition, some trimethoxysilane side groups hydrolyzed and condensed, so the integration of methoxy groups on the silicon atom was less than the theoretical value)



**Figure S4.**  $^{29}\text{Si}$  solid-state NMR spectrum of Sample 2.



**Figure S5.** SEM image of Sample 2 after 80% compression strain.



**Figure S6.** TGA curves of the polyimide aerogels at a heating rate of 10 °C/min in air.