

## Supplementary Information

# Facile Preparation of a Novel HfC Aerogel with Low Thermal Conductivity and Excellent Mechanical Properties

WeiWang<sup>1,2,3</sup>, Zhanwu Wu<sup>3</sup>, Shicong Song<sup>3</sup>, Qi You<sup>1,2</sup>, Sheng Cui<sup>1,2,\*</sup>,  
Weimin Shen<sup>3,\*</sup>, Guoqing Wang<sup>3</sup>, Xuanfeng Zhang<sup>3</sup> and Xiaofei Zhu<sup>3</sup>

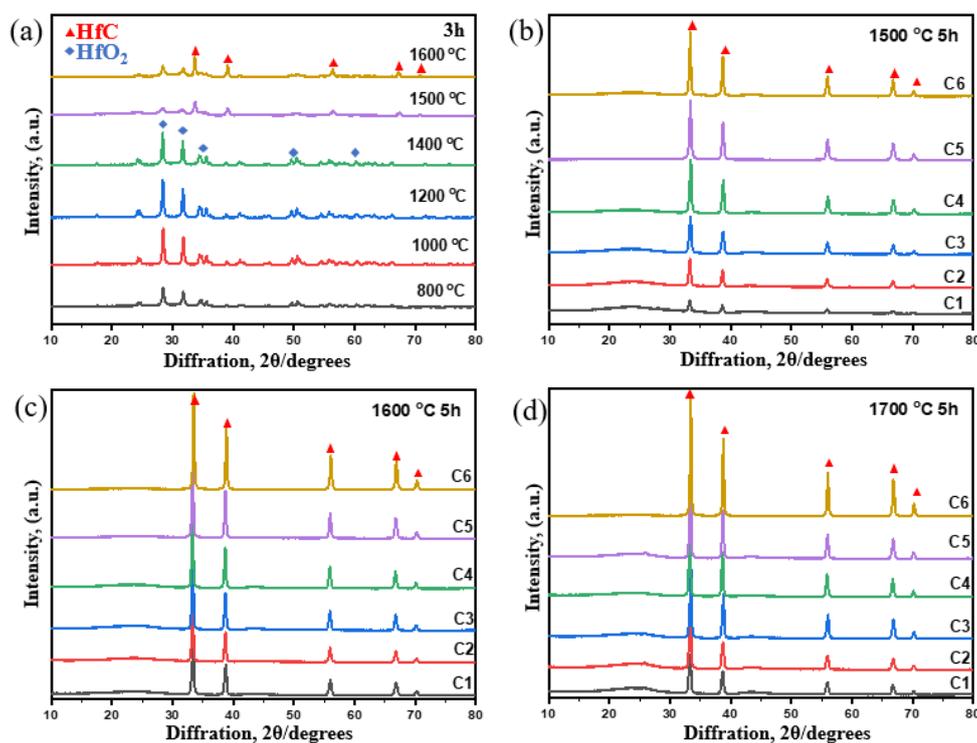
1 College of Materials Science and Engineering, Nanjing Tech University, Nanjing, 210009, China

2 Jiangsu Collaborative Innovation Center for Advanced Inorganic Function Composites, Nanjing Tech University, 211800 Nanjing, China

3 Shanghai Space Propulsion Technology Research Institute, 313000 Huzhou, China

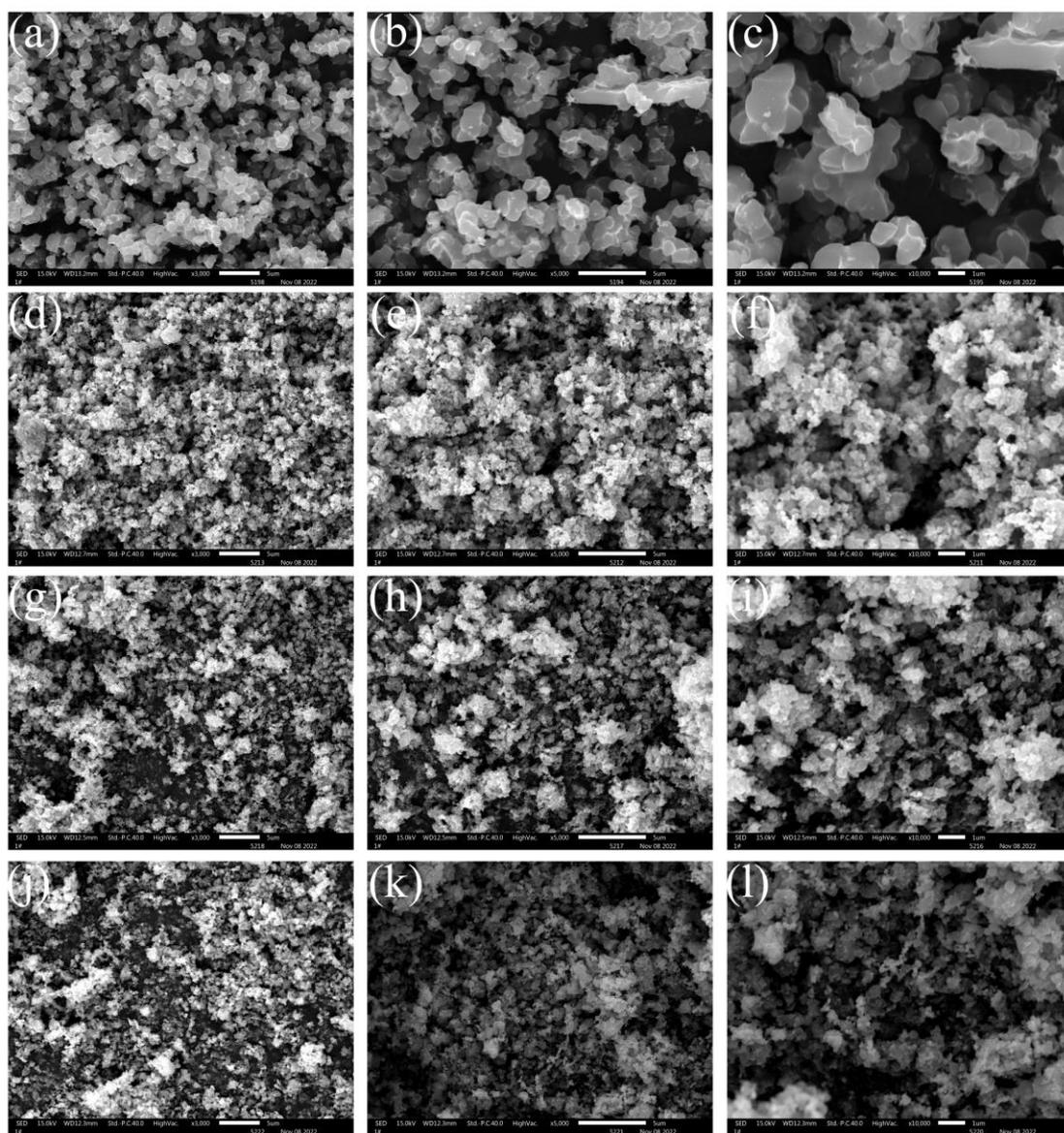
\* Correspondence: cui2002sheng@126.com (S.C.); sunhuid@163.com (W.S.)

### XRD patterns of the HfC aerogel



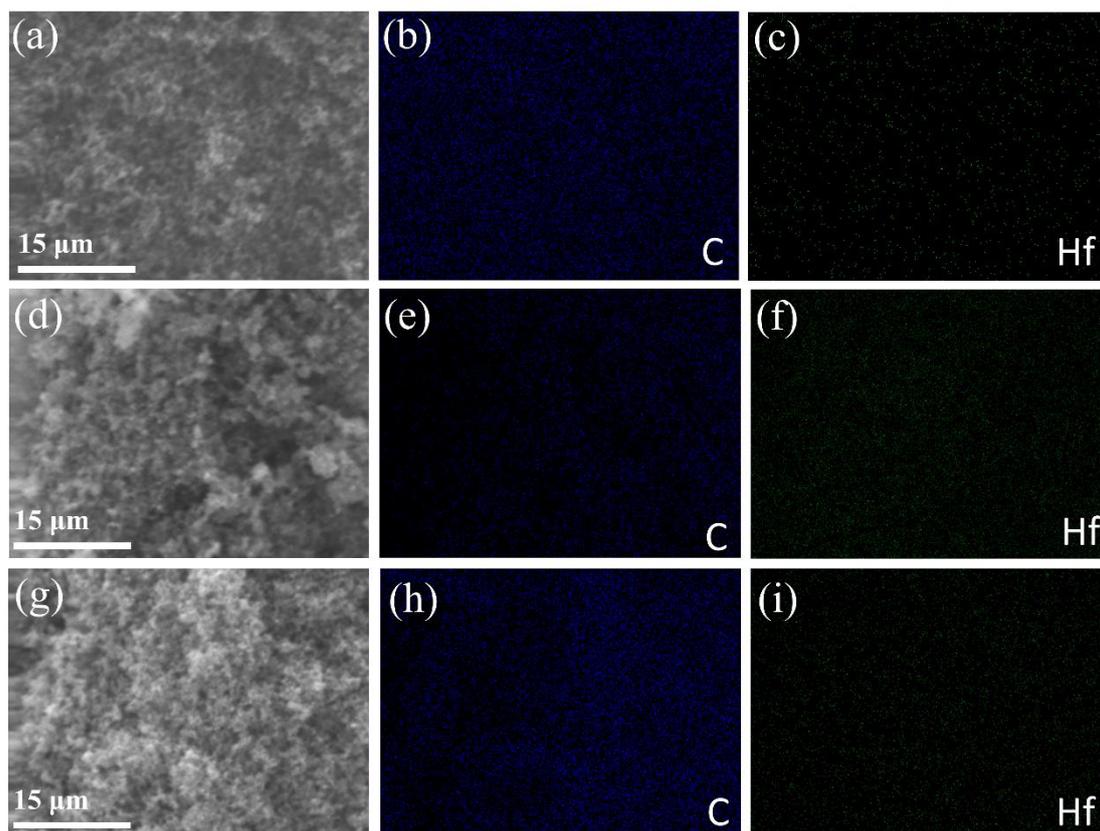
**Figure S1.** XRD patterns of the HfC aerogel with various Hf/R molar ratios, heat-treated at various temperatures and for various time durations.

## SEM analyses of the HfC aerogel



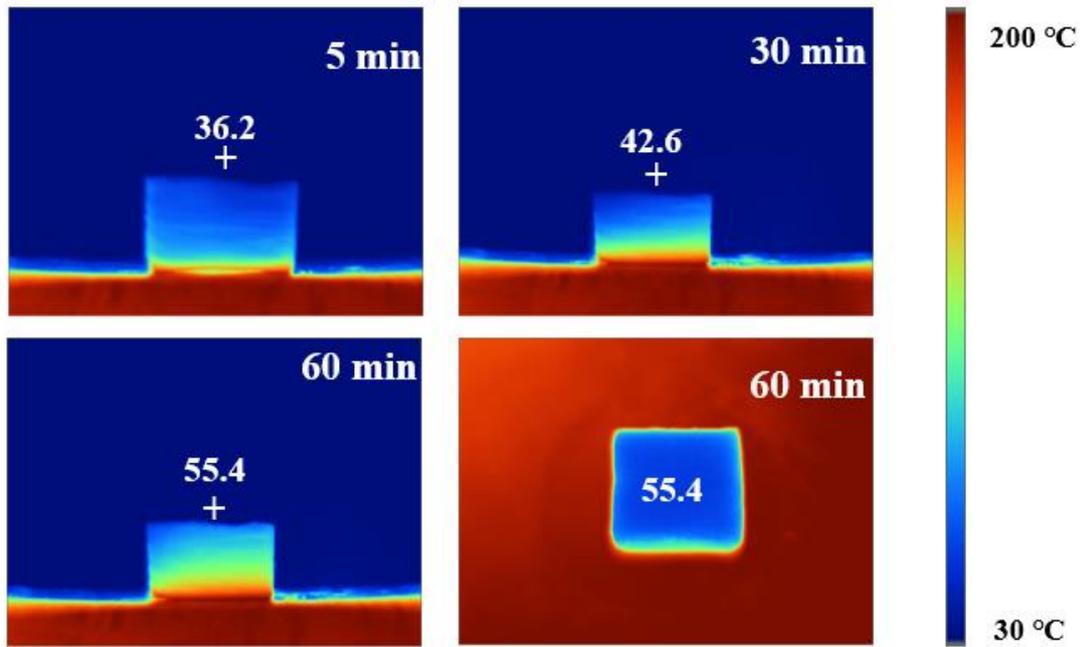
**Figure S2.** SEM images of the HfC aerogel heat treated at different temperatures (a-c) 800 °C; (d-f) 1400 °C; (g-i) 1500 °C; (j-l) 1600 °C.

## Mapping images of the HfC aerogel



**Figure S3.** The elemental mapping of HfC aerogels at different heat treatment temperatures: (a-c) 1400 °C, (d-f)1500 °C and (g-i) 1600 °C

### **Infrared thermal images of the HfC aerogel**



**Figure S4.** Infrared photo of 200 °C thermal insulation test of the carbon fiber mat composite  
HfC aerogel