

Supplementary Information

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

WeiWang^{1,2,3}, Zhanwu Wu³, Shicong Song³, Qi You^{1,2}, Sheng Cui^{1,2,*},
Weimin Shen^{3,*}, Guoqing Wang³, Xuanfeng Zhang³ and Xiaofei Zhu³

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.); sunhuisd@163.com (W.S.)

XRD patterns of the HfC aerogel

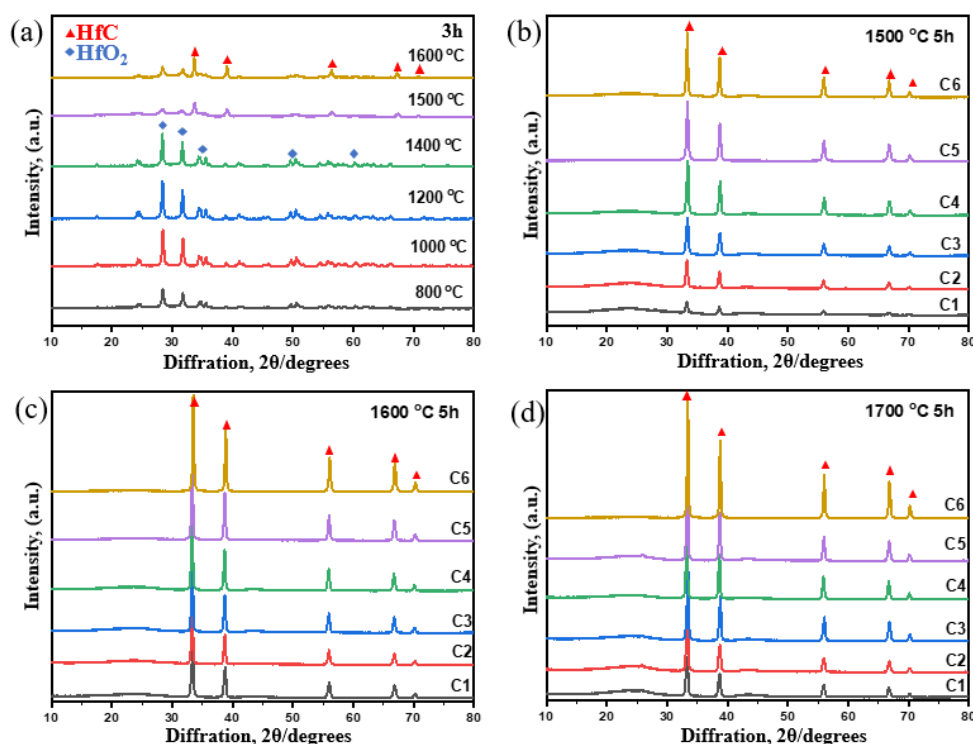


Figure S1. XRD patterns of the HfC aerogel with various Hf/R molar ratios, heat-treated at various temperatures and for various time durations.

SEM analyses of the HfC aerogel

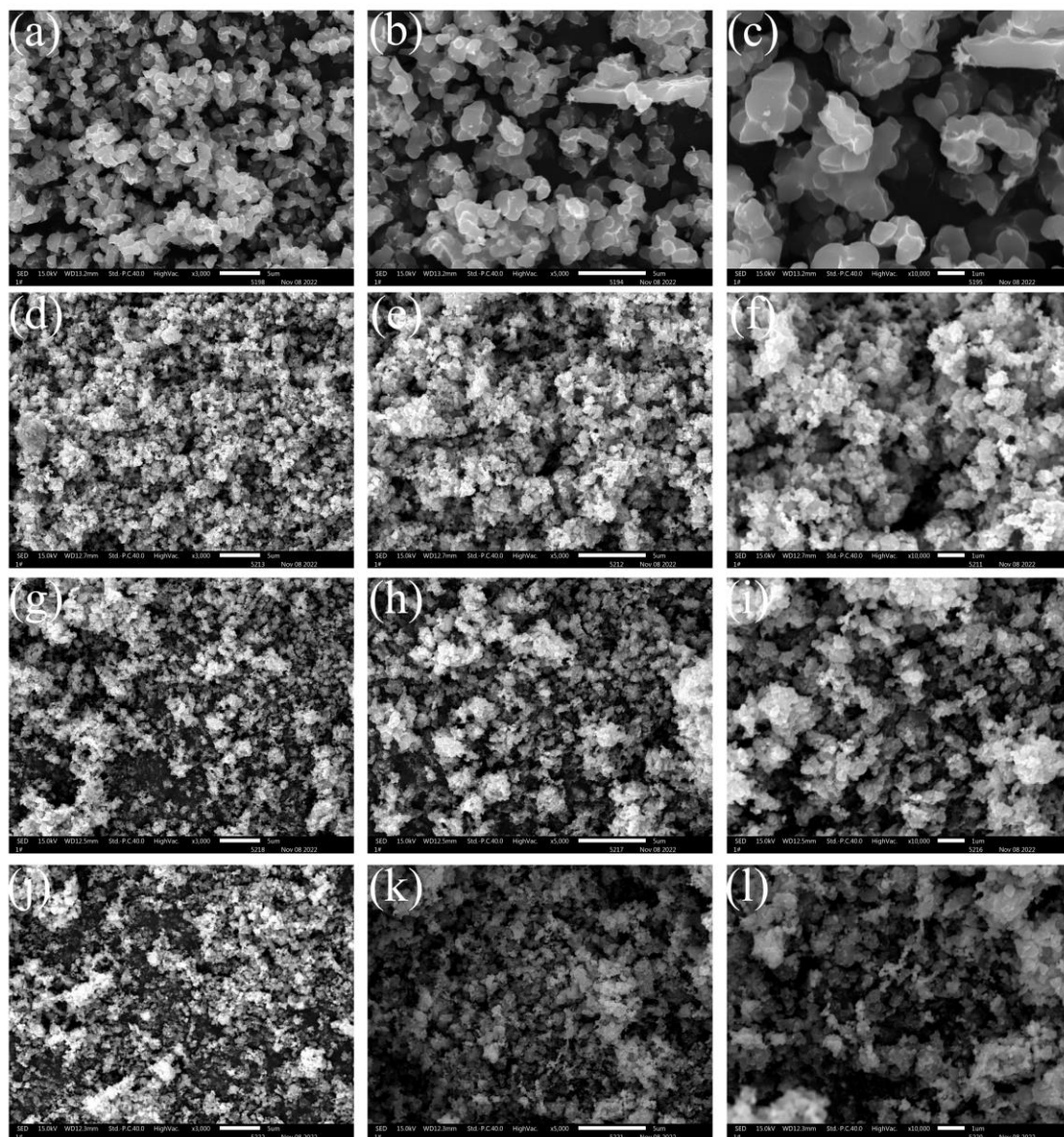


Figure S2. SEM images of the HfC aerogel heat treated at different temperatures (a-c) 800 °C; (d-f) 1400 °C; (g-i) 1500 °C; (j-l) 1600 °C.

Mapping images of the HfC aerogel

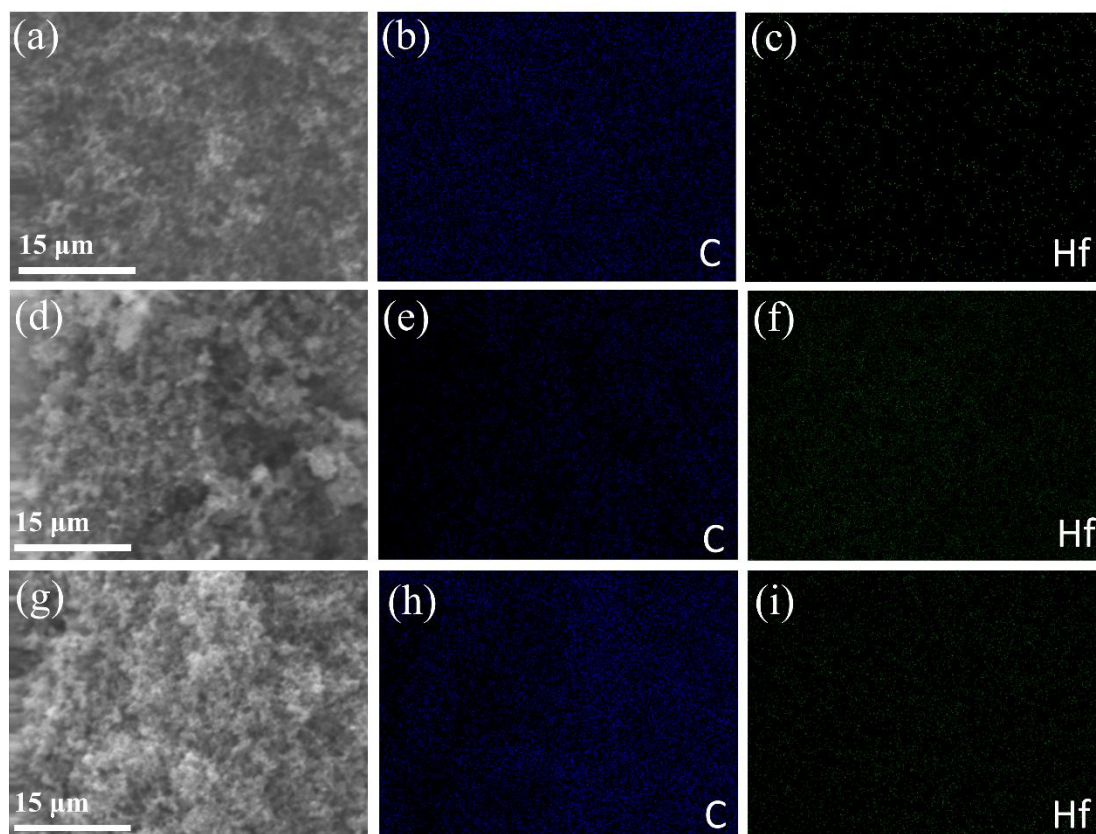


Figure S3. The elemental mapping of HfC aerogels at different heat treatment temperatures: (a-c) 1400 °C, (d-f) 1500 °C and (g-i) 1600 °C

Infrared thermal images of the HfC aerogel

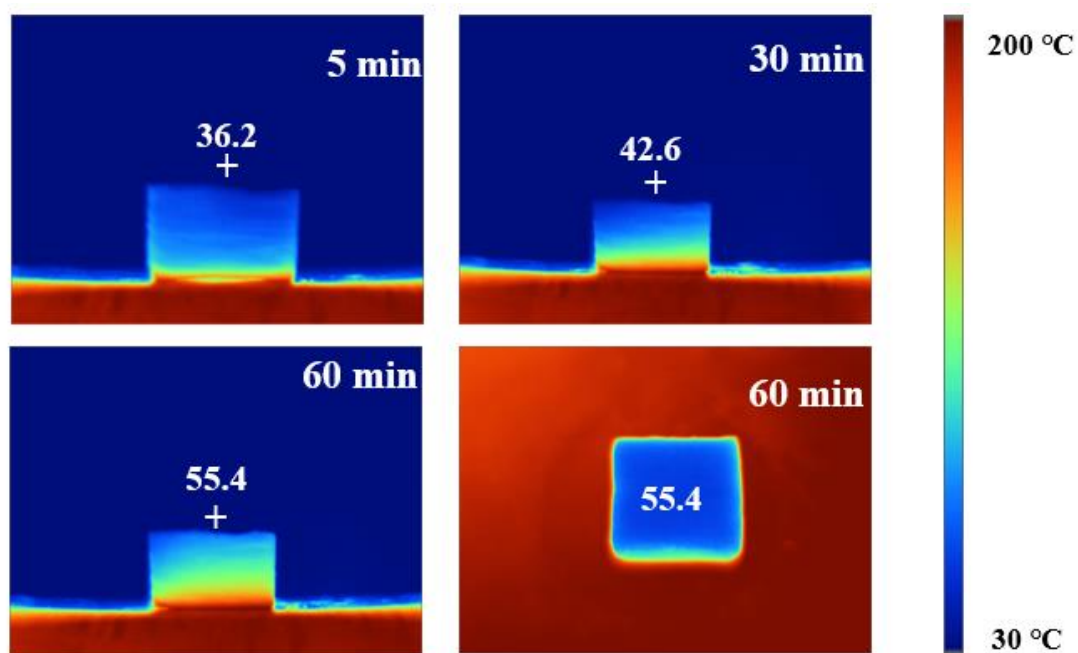


Figure S4. Infrared photo of 200 °C thermal insulation test of the carbon fiber mat composite

HfC aerogel