

## Supplementary Information

# Thermal Management Applied Laminar Composites with SiC Nanowires Enhanced Interface Bonding Strength and Thermal Conductivity

*Jing Chang<sup>a,b</sup>, Qiang Zhang<sup>a,c\*</sup>, Yingfei Lin<sup>d</sup>, Puzhen Shao<sup>a</sup>, Yinyin Pei<sup>e</sup>, Sujuan Zhong<sup>e</sup>, Gaohui Wu<sup>a,c</sup>*

<sup>a</sup> School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, 150001, P.R. China

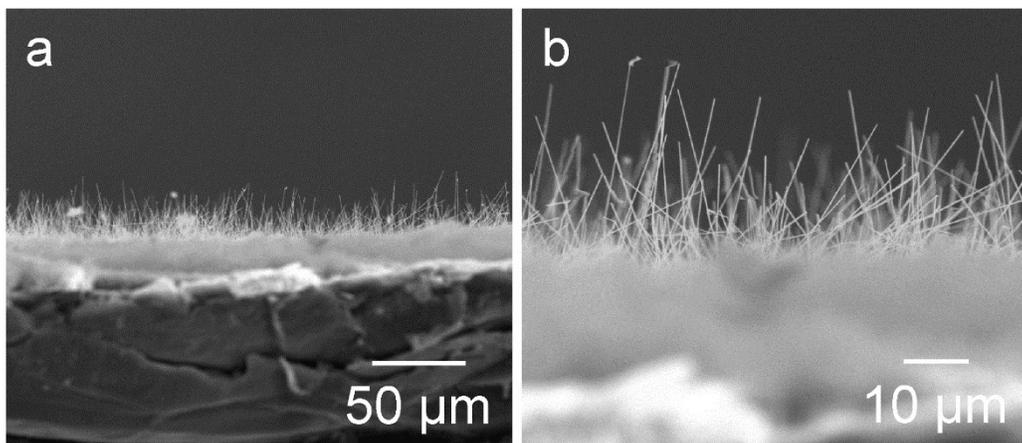
<sup>b</sup> School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, 637371, Singapore

<sup>c</sup> Key Laboratory of Advanced Structure-Function Integrated Materials and Green Manufacturing Technology, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, 150001, P. R. China

<sup>d</sup> Guangdong Institute of Materials and Processing, Guangzhou, 510650, P. R. China

<sup>e</sup> State Key Laboratory of Advanced Brazing Filler Materials & Technology, Zhengzhou Research Institute of Mechanical Engineering Co. Ltd., Zhengzhou, 450001, P. R. China

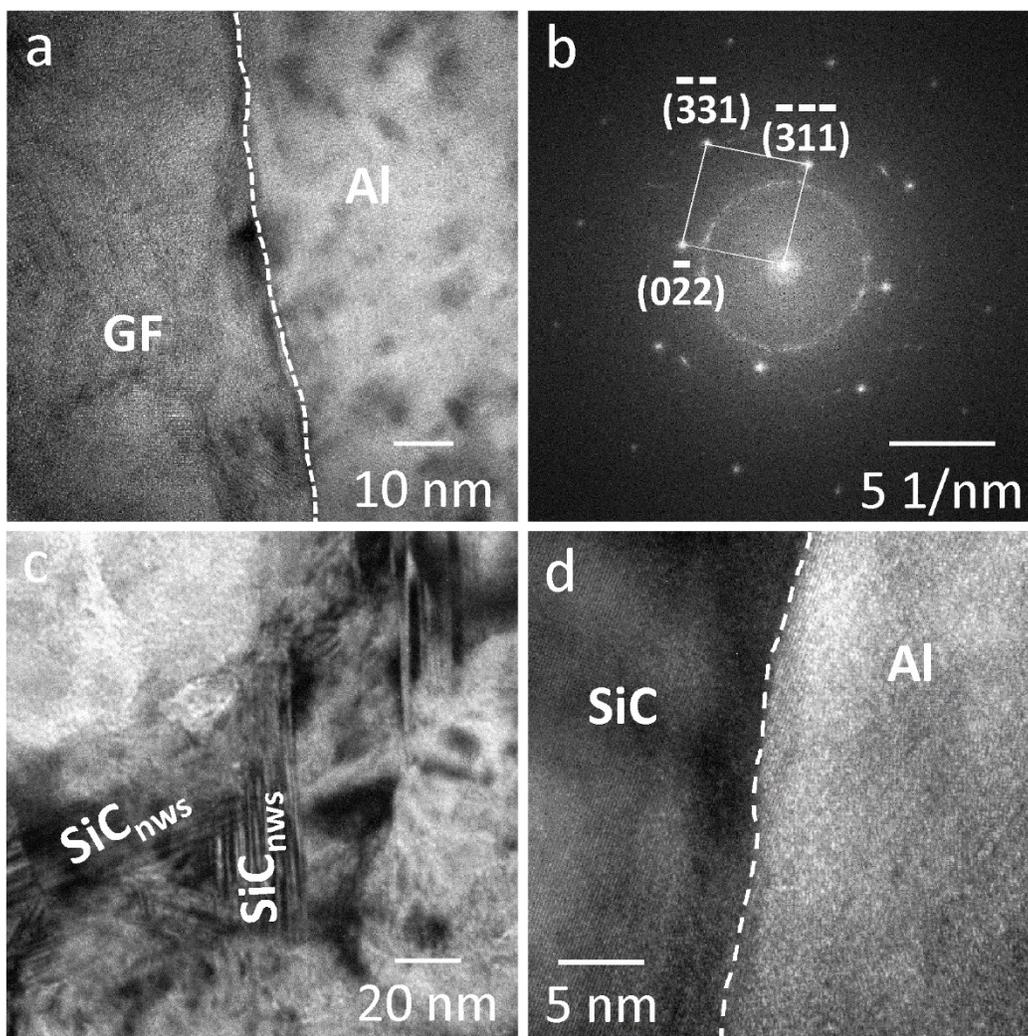
\*E-mail: zhang\_tsiang@hit.edu.cn (Q. Zhang)



**Figure S1.** SEM images of cross section of SiC<sub>nws</sub>-GF multiscale architectures.

**Table S1.** Density of SiC<sub>nws</sub>-GF reinforced Al laminar composites with different loading of SiC<sub>nws</sub>-GF

Sample	V <sub>SiC<sub>nws</sub>-GF</sub> (vol %)	ρ (g/cm <sup>3</sup> )
S1	26.8	2.59
S2	41.8	2.45
S3	51.2	2.32
GF/Al	51.2	2.28



**Figure S2.** (a) HRTEM image of the interface between the Al matrix and GF in the SiC<sub>nws</sub>-GF reinforced Al composite, (b) SAED pattern of the interface between the Al matrix and GF, (c) Bright field TEM image of the interface between the SiC nanowires and Al matrix in the SiC<sub>nws</sub>-GF reinforced Al composite, (d) HRTEM image of the interface between the SiC nanowire and Al matrix.