

SUPPORTING INFORMATION

Thermal conductivity and mechanical properties of flake graphite/Cu composite with a silicon nano-layer on graphite surface

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SUPPLEMENT

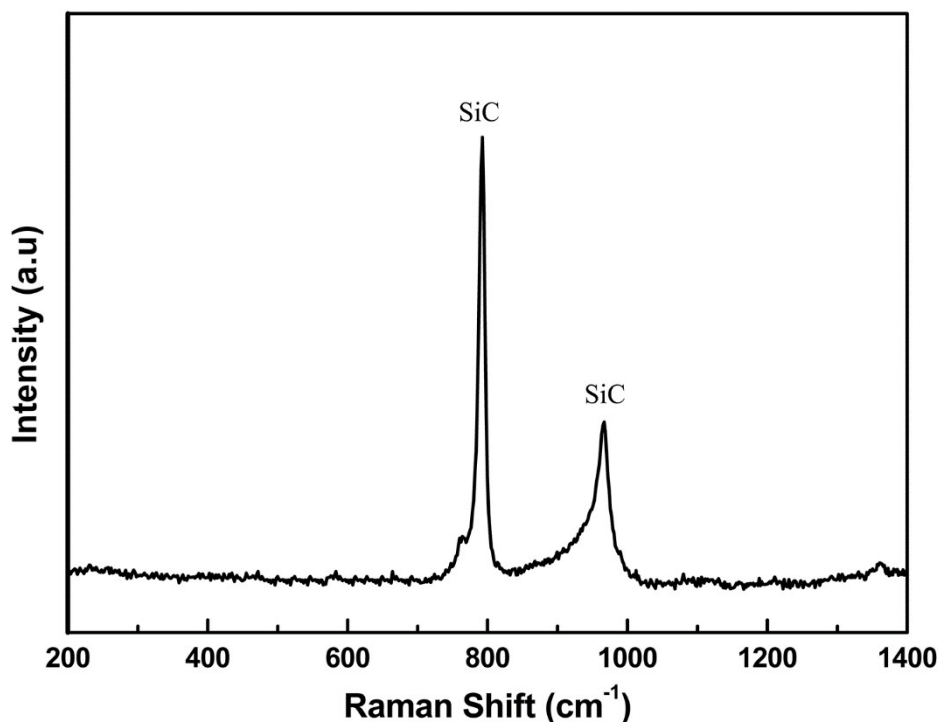


Fig. S1. Raman spectrum of the Si-coating grown on the surface of G_f

The Raman spectra of the Si-coating grown on the G_f surface, as shown in Fig.

S1, help demonstrate the composition of the coated G_f . The Raman spectra were collected with a Renishaw Raman spectroscope (532 nm laser excitation wavelength). The main peaks are at 798 and 972 cm^{-1} , corresponding to the optical phonon mode of β -SiC, which are nearly the same as the peaks reported by M. Bechelany et al.,¹ Peak1, located at 798 cm^{-1} , has been attributed to the transverse optical phonon mode, while the peak located 972 cm^{-1} , are assigned to the longitudinal optical phonon mode.



Fig. S2. An overview TEM bright-field (BF) image of the Si-coated G_f /Cu interface

In order to analyze the interface at a nanoscale, the composites were examined by TEM. Fig. S2 and the EDX results show 3 distinct areas: the regions A, B and C corresponding to the G_f , SiC interlayer and Cu matrix, respectively. The result show that the SiC coating still remain after sintering process, which is consistent with the XRD results of the composites.

¹ M. Bechelany, A.Brioude, D.Cornu, G.Ferro, P.Miele, A Raman spectroscopy study of individual SiC nanowires, *Adv.Funct.Mater.*17 (2007) 939–943.