



Supporting Information

for

Concurrent nanoscale surface etching and SnO₂ loading of carbon fibers for vanadium ion redox enhancement

Jun Maruyama, Shohei Maruyama, Tomoko Fukuhara, Toru Nagaoka and Kei Hanafusa

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Enlarged views of FESEM images, Raman spectra, C 1s XPS spectra, deconvoluted O 1s XPS spectra, and the content of surface oxygen species

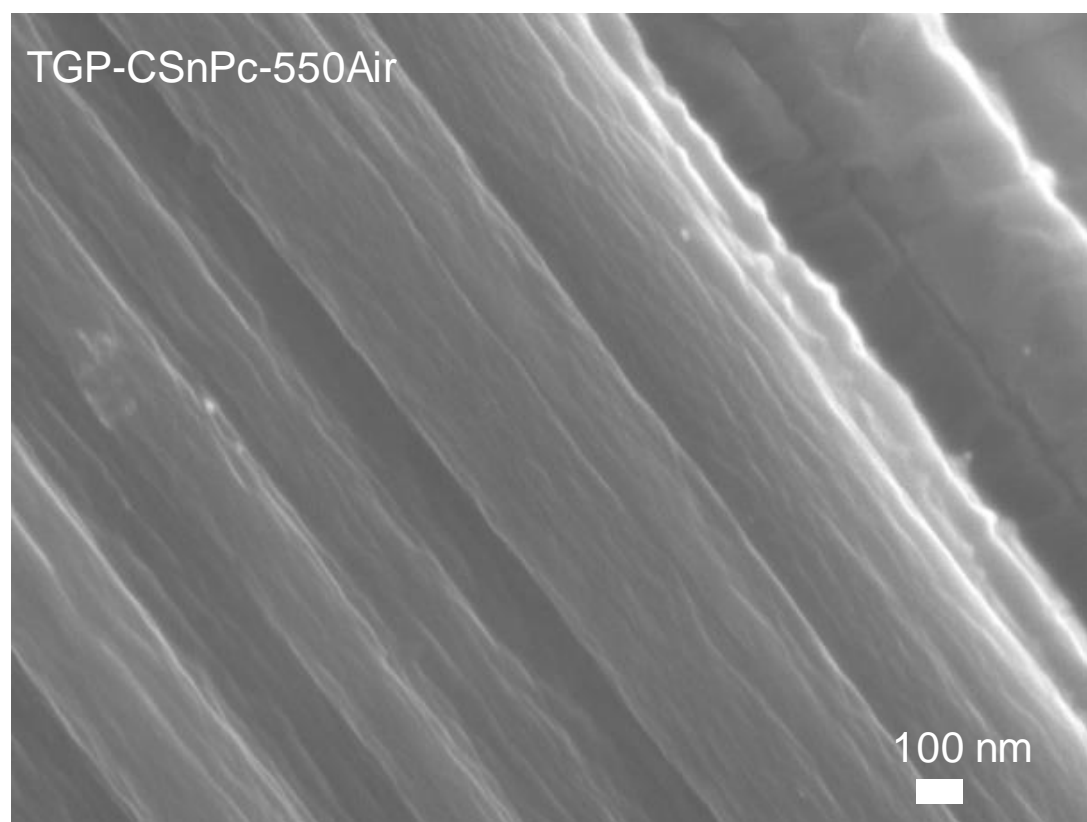
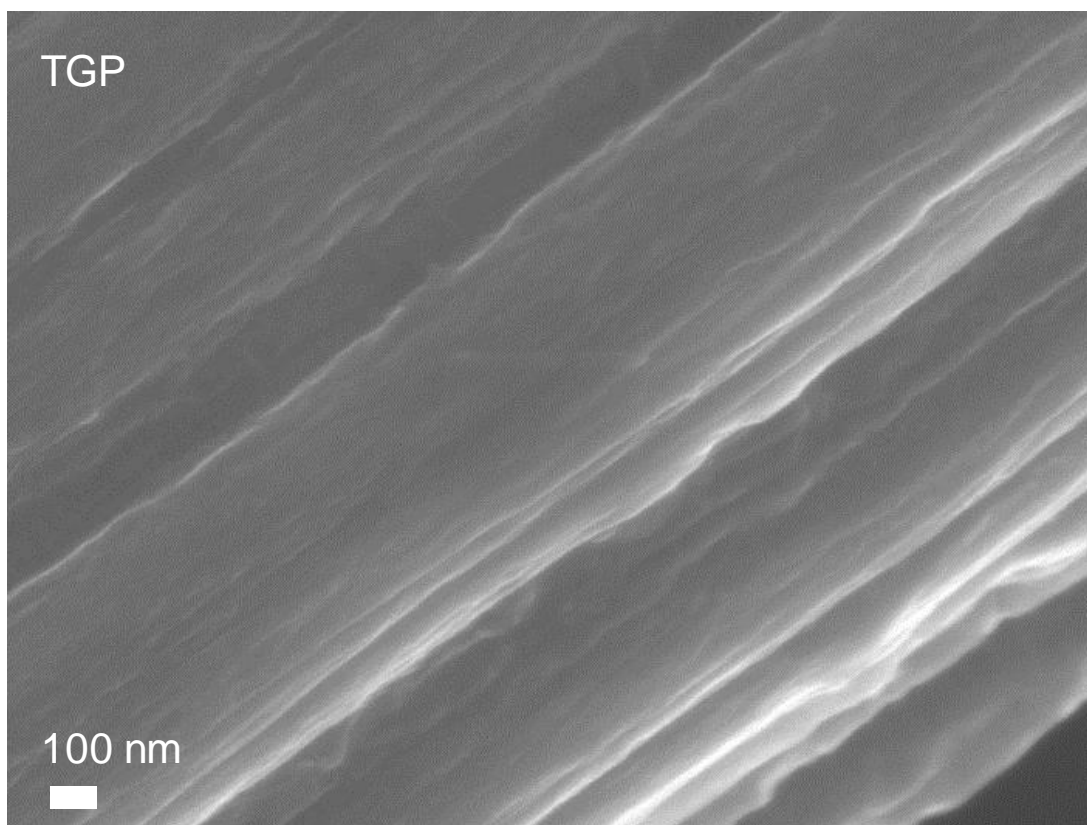


Figure S1: Enlarged views of FESEM images for TGP and TGP-CSnPc-550Air.

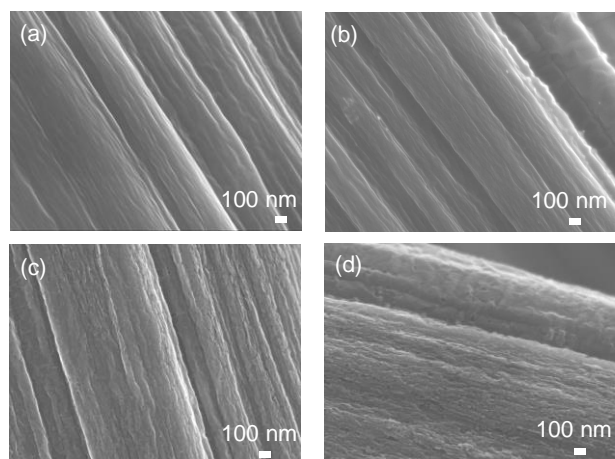


Figure S2: FESEM images of TGP-CSnPc-TAir ($T = 500$ (a), 550 (b), 600 (c), 650 °C (d)).

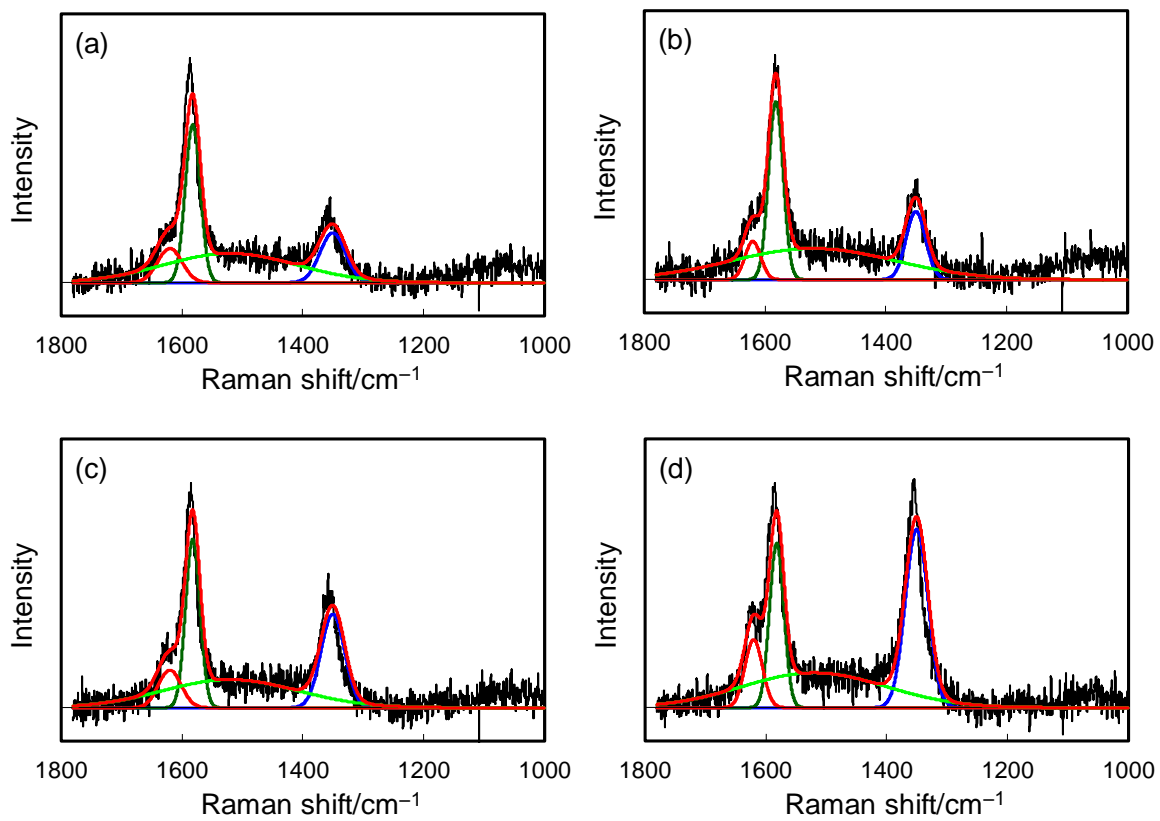


Figure S3: Raman spectra of TGP-CSnPc-TAair ($T = 500$ (a), 550 (b), 600 (c), 650 °C (d)).

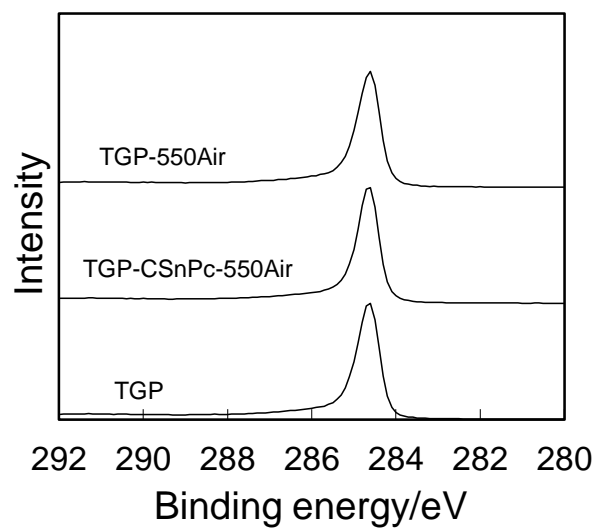


Figure S4: XPS spectra of C 1s in TGP, TGP-CSnPc-550Air, and TGP-550Air.

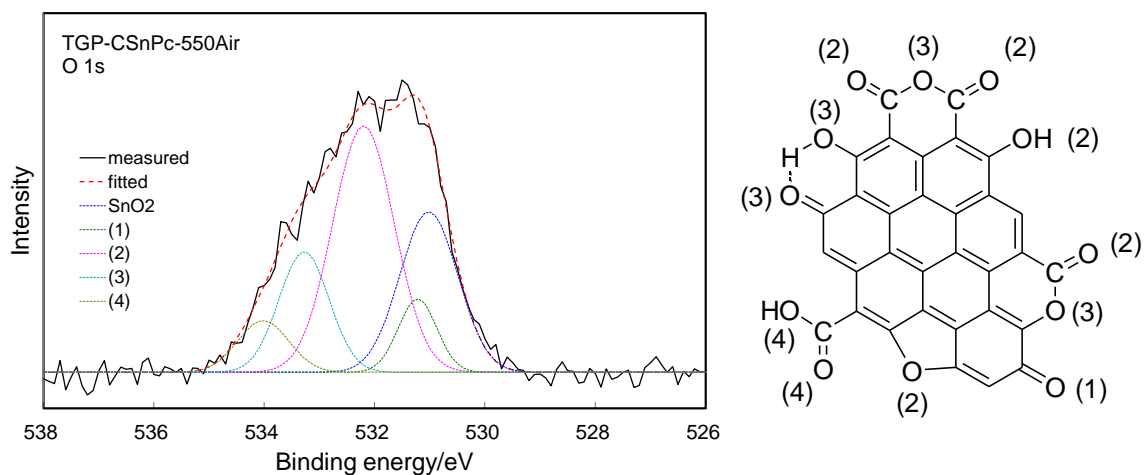


Figure S5: (a) X-ray photoelectron spectra of O 1s in TGP-CSnPc-550Air and possible bonding modes according to [1-4]; (b) scheme of O-containing functional groups cited from [1]. The numbers in parentheses in (a) correspond to the bonding modes represented in (b).

Table S1: Content of O species.

species	content [%]
SnO ₂	25.9
mode (1)	7.9
mode (2)	42.2
mode (3)	16.8
mode (4)	7.3

References

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