Nitrogen-content and morphology dependent field emission properties of nitrogen-doped SiC nanowires and density functional calculations

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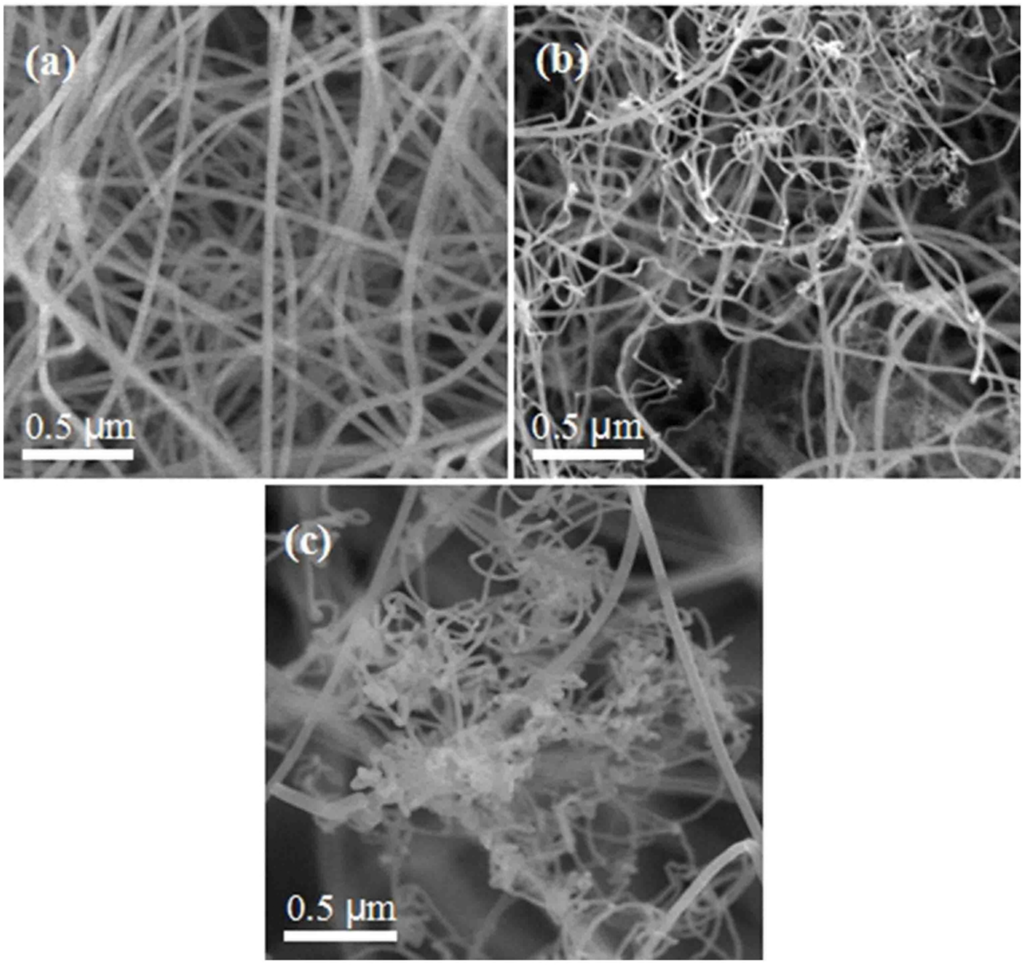

Fig. S1 Low-magnification SEM images of the as-synthesized N-doped SiC NWs:

(a) sample 1, (b) sample 2 and (c) sample 3.

Tab. S1 Elementary analysis results of Sample 1-3

Sample	Weight (mg)	C/N Mass Ratio	N Content (wt%)
1	1.919	26.24	0.975
2	2.774	14.69	1.336
3	2.753	5.055	2.265

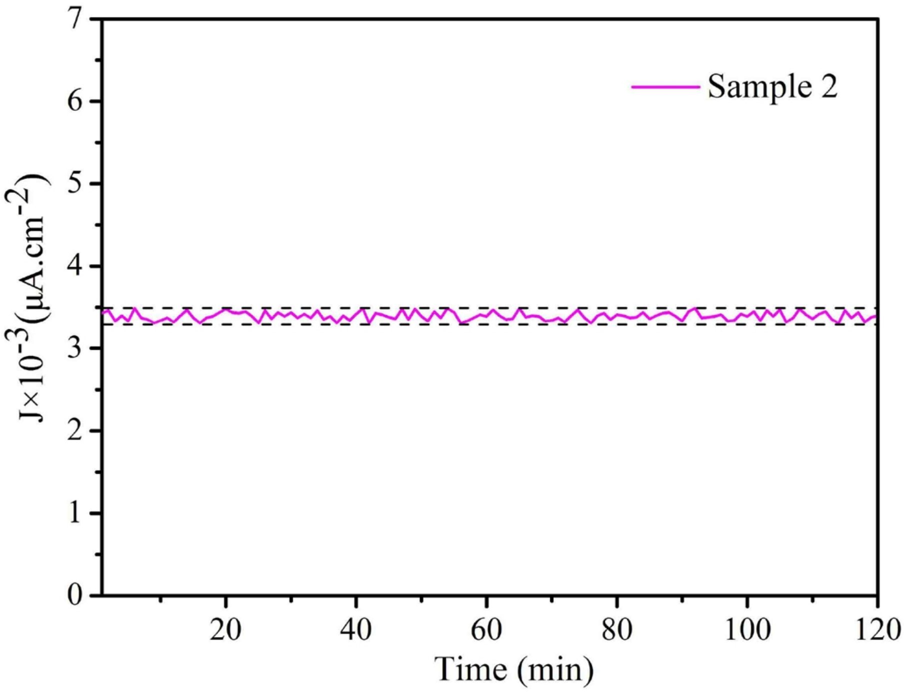

Fig. S2 FE emission stability of sample 2.

The emission current stability of sample 2, as one of significant parameter for the field emissions, was investigated at an applied field of 3.0 V.μm^{-1} with a monitoring time of 120 min as shown in **Fig. S2**. A very small current fluctuation <4.5% can be observed, which exhibits no degradation of emission current density recorded over a period of 120 min. The analysis results suggest that FE properties of the emitter possess high stability.

Tab. S2 A comparision of turn-on fields for various SiC emitter materials

Emitters	Turn-on fields (E_{to})/V μm^{-1}	Ref.
N-doped SiC quasialigned nanowires	1.90-2.65	1
β-SiC nanorods	13-17	2
3C-SiC nanobelts	3.2	3
SiC porous nanowire arrays	2.3-2.9	4
bamboo-like β-SiC nanowires	10.1	5
tubular single-crystal β-SiC nanosystem	5	6
β-SiC nanoarchitectures	12	7
Al_2O_3 nanoparticle-decorated tubular SiC nanostructure	2.4	8
lawn-like SiC nanowires	2.1	9
SiC/SiO_2 nanowires	4.5	10
N-doped SiC nanowires	1.5	this work

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