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Electronic Supporting Information

Al-doped SiC nanowires wrapped by nanowires network: Excellent field emission property and robust stability at the high current density

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Fig.S1 Geometric optimization model of (a) undoped SiC and (b) Al-doped SiC.

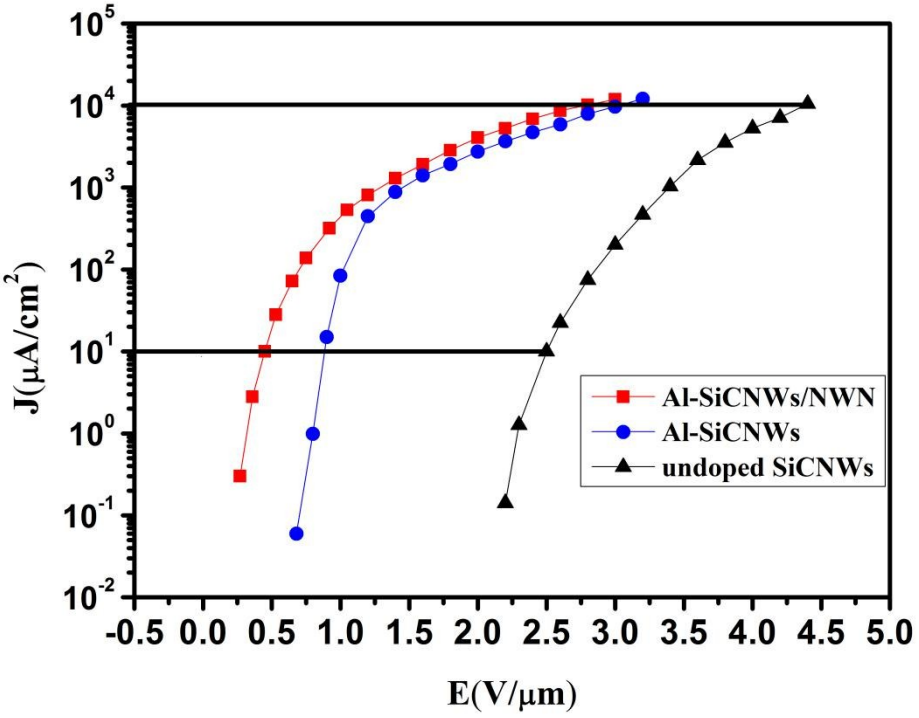

Fig. S2 Field emission current density versus electric field (J−E) curves of undoped SiC NWs, Al-SiC NWs and SiC NWs/NWN presented in semi-log plots.

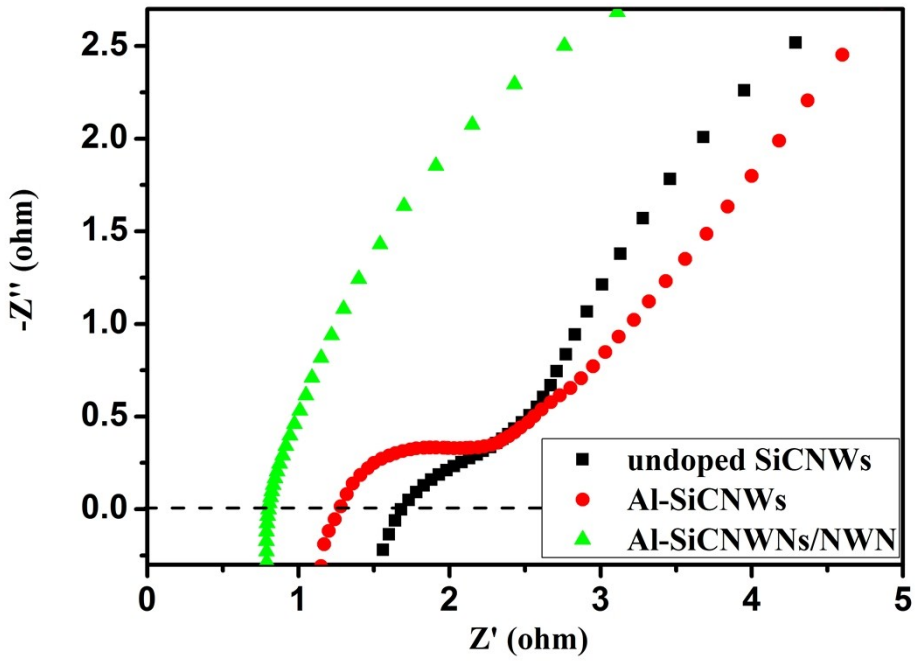

Fig.S3 Nyquist plots of the undoped SiCNWs, Al-SiCNWs and Al-SiCNWs wrapped by nanowires network (Al-SiCNWNs/NWN) grown on graphitic substrate.

The electrochemical impedance spectroscopy of undoped SiCNWs, Al-SiCNWs and Al-SiCNWs wrapped by nanowires network grown on graphitic substrate was performed on a standard three-electrode system at room temperature. The Nyquist plots of the products were shown in Fig. S3. The intersection of the plots at the real axis revealed the internal resistance of undoped SiC NWs, Al-doped SiC NWs and Al-SiC NWs wrapped by nanowires network grown on graphitic substrate to be 1.7, 1.2 and 0.8Ω, respectively.