Supporting information

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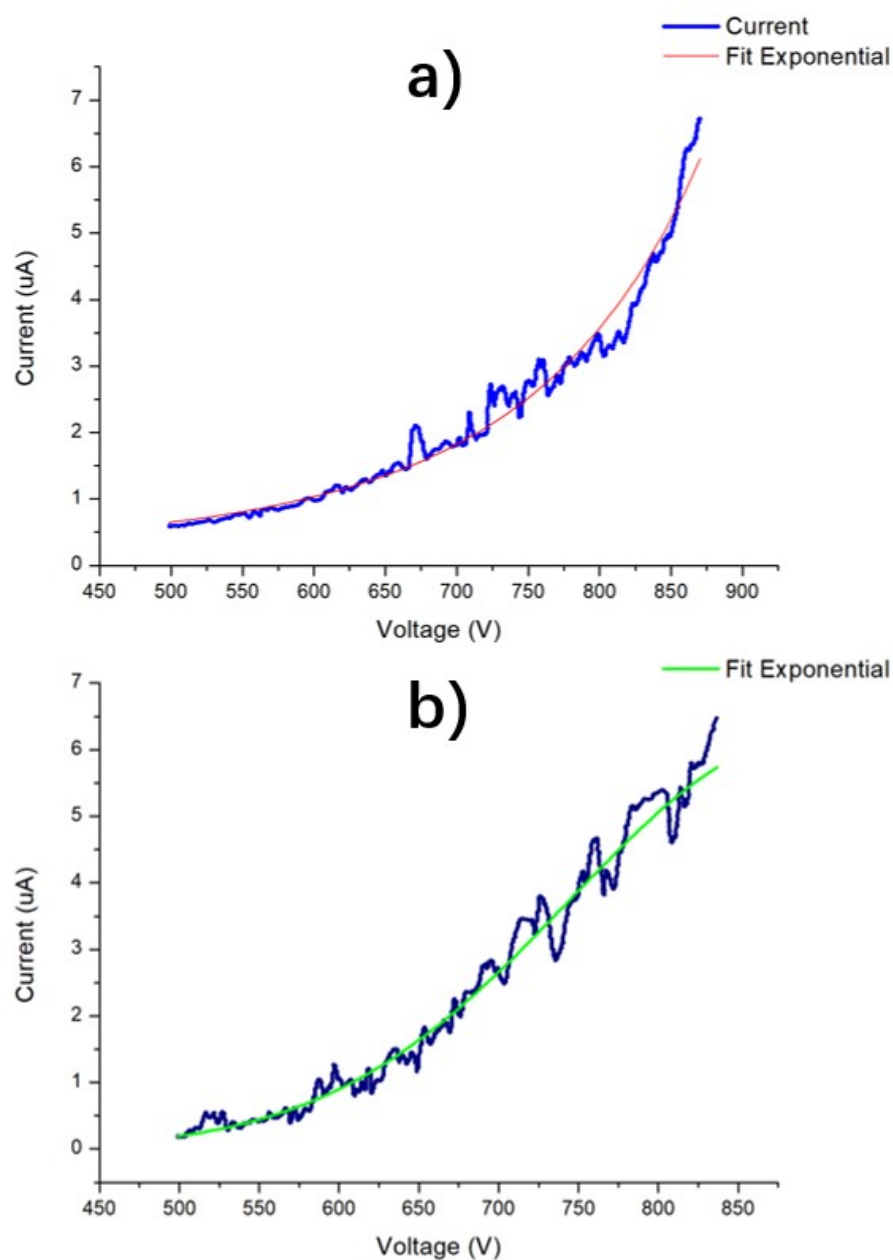**Jiaqi Wang,**
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Fig 1. IV curve of a) the first approach, b) the second approach.

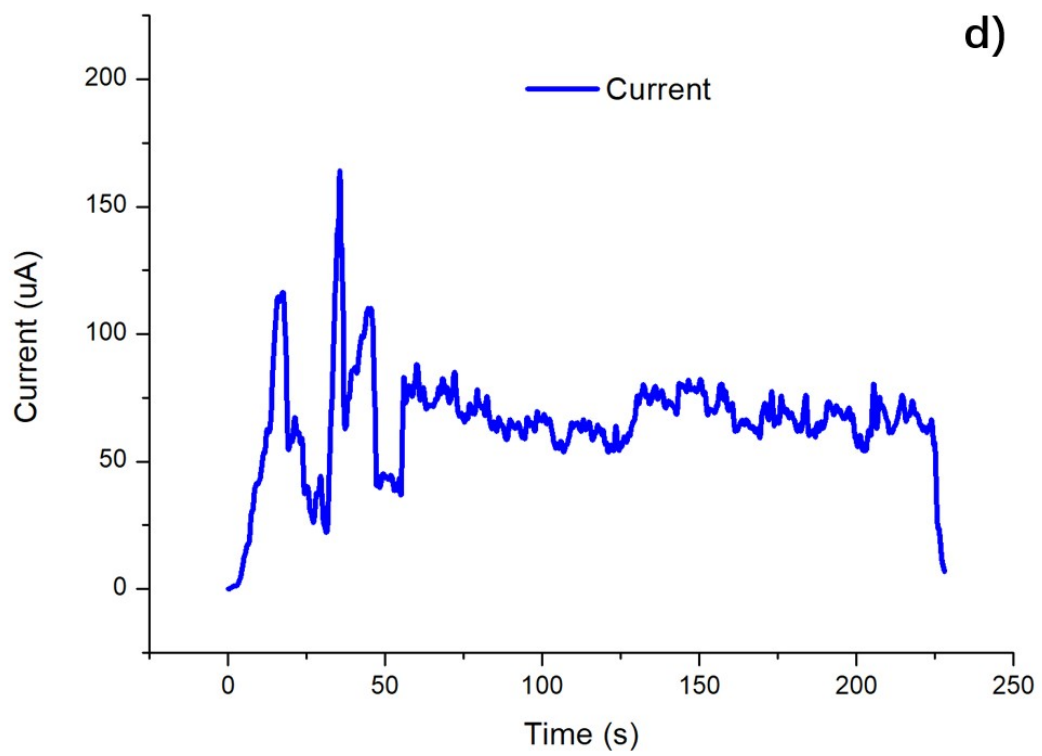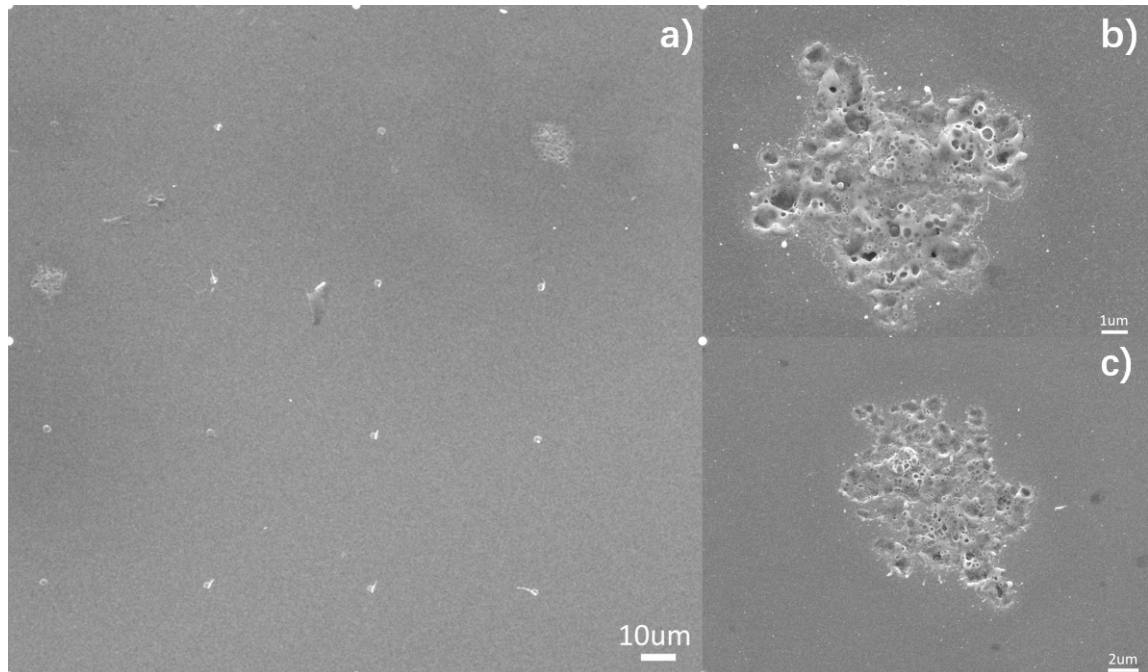The relationship between current and voltage is exponential which follows the F-N equation.

Fig. 2 SEM image of crater caused by Coulomb explosion in the first approach. a) the image of the whole 4 X 4 array. b), c) the image of the craters. d) the change of emission current in the second approach during Coulomb explosion, the highest peak is the time when three continuous explosions occur.

(I)

Si₃N₄
Si

2000nm Si₃N₄ Deposition

(II)

Si

Si₃N₄ etching

(III)

Si₃N₄ Si₃N₄
Si   Si
   Si

Si etching using DRIE

(IV)

Photolithography

Si₃N₄   Si₃N₄
Si   ▽   Si
        Si

Cr buffer layer patterning & deposition

(V)

EBL

Si₃N₄   Si₃N₄
Si   ▽   Si
        Si

Ni catalyst dots patterning & deposition

(VI)

Si₃N₄   Si₃N₄
Si   ‖‖   Si
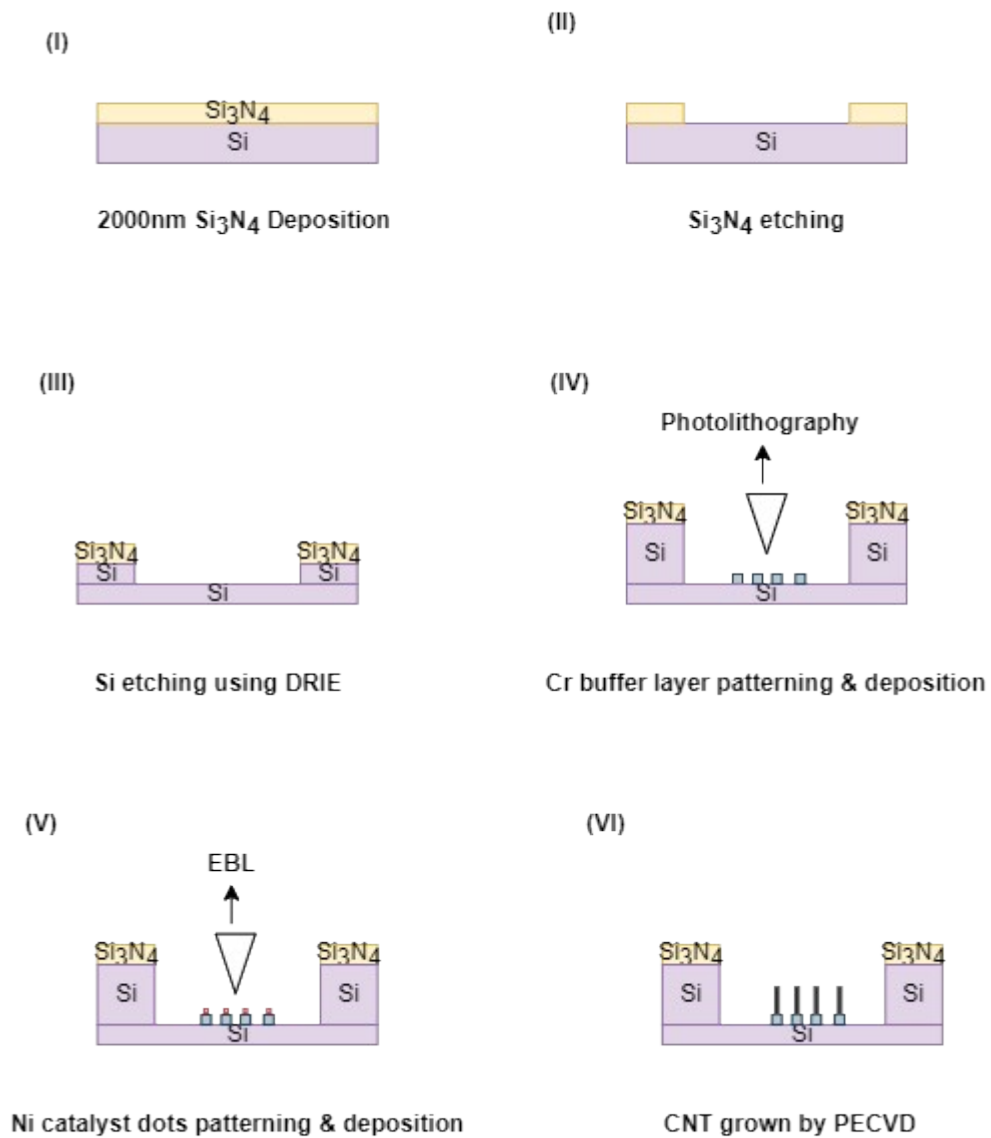   Si

CNT grown by PECVD

Fig. 3 Schematic diagram of fabrication process flow of CNT field emitter.