

†Electronic Supplementary Information (ESI)

Field emission properties of highly ordered low-aspect ratio carbon nanocup arrays

Bipin Kumar Gupta^{a,*}, Garima Kedawat^b, Pawan Kumar^{a,c}, Satbir Singh^{a,c}, Sachin R. Suryawanshi^d, Neetu Agrawal (Garg)^b, Govind Gupta^a, Ah Ra Kim^e, R. K. Gupta^f, Mahendra A. More^d, Dattatray J. Late^{g,*}, Myung Gwan Hahm^{e,*}

^aCSIR - National Physical Laboratory, Dr K S Krishnan Road, New Delhi, 110012, India, ^bDepartment of Physics, Kalindi College, University of Delhi, New Delhi, 110008, India, ^cAcademy of Scientific and Innovative Research (AcSIR), CSIR – National Physical Laboratory campus, New Delhi – 110012, India ^dCentre for Advanced Studies in Materials Science and Condensed Matter Physics, Department of Physics, University of Pune, Pune 411007, India, ^eDepartment of Advanced functional thin films, surface technology division, Korea institute of material science (KIMS), 797 Changwondaero, Sungsan-GU, Changwon, Gyeongnam, 642-831, Republic of Korea, ^fDepartment of Chemistry, Pittsburg State University, Pittsburg, KS, 66762, USA, ^gPhysical & Materials Chemistry Division, CSIR-National Chemical Laboratory, Pashan Road, Pune 411008, India.

* Corresponding author. Tel.: +91-11-45608284, Fx: +91-11-45609310

E-mail address: bipinbhu@yahoo.com (B.K.G.), dj.late@ncl.res.in (D. J. L.), mghahm@kims.re.kr (M.G.H.)

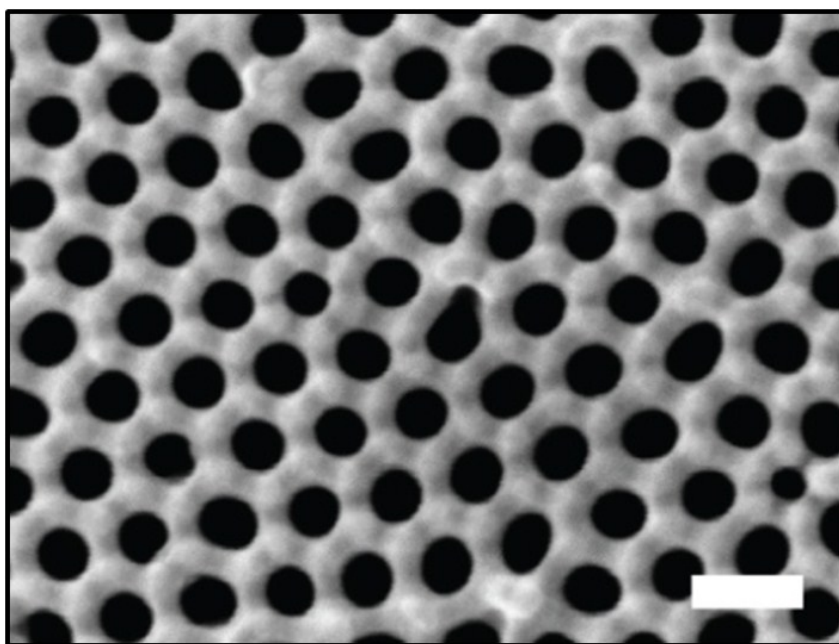


Figure S1. Top-view of CNC array on the AAO template, the scale bar is 100 nm.

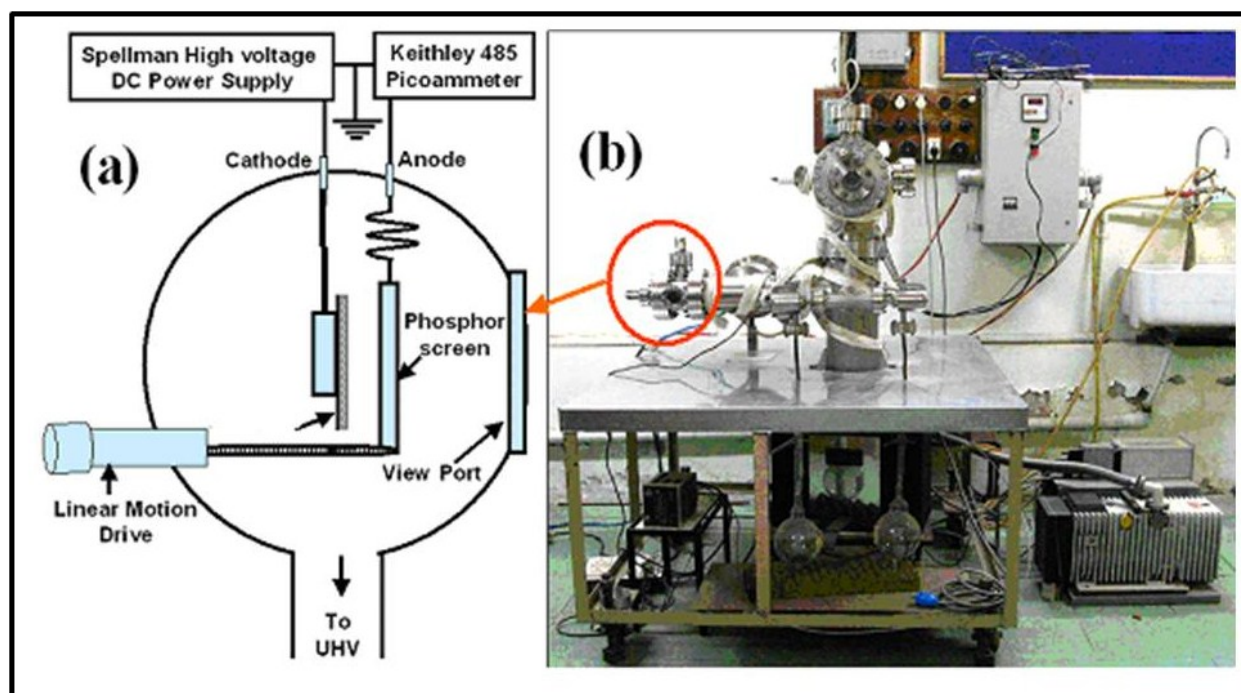


Figure S2. The field emission measurement instrument.

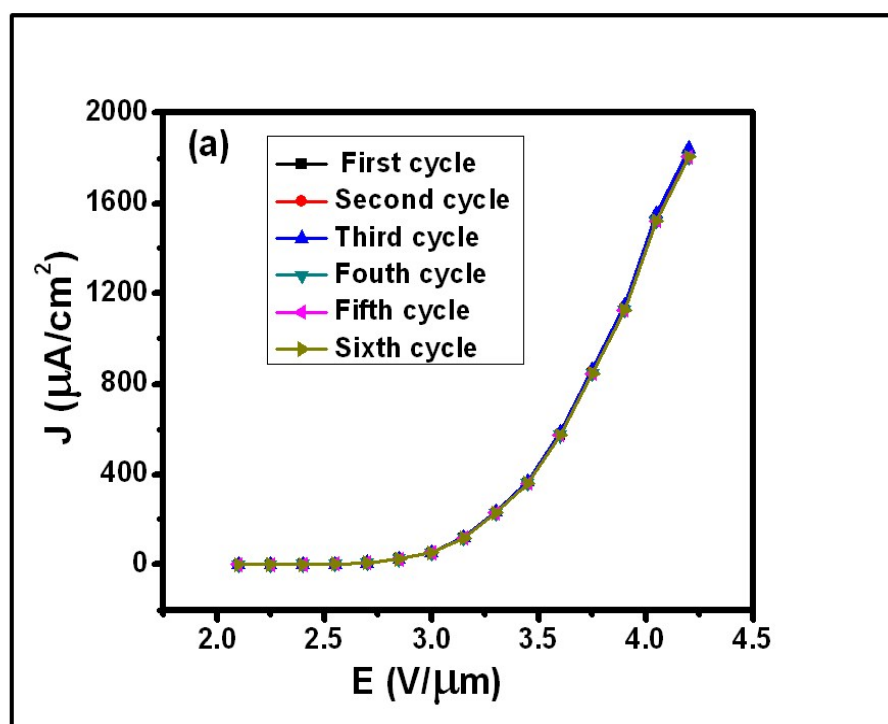


Figure S3a. Field emission characteristics of CNC sample from 1st to 6th cycle run, showing better emission stability.

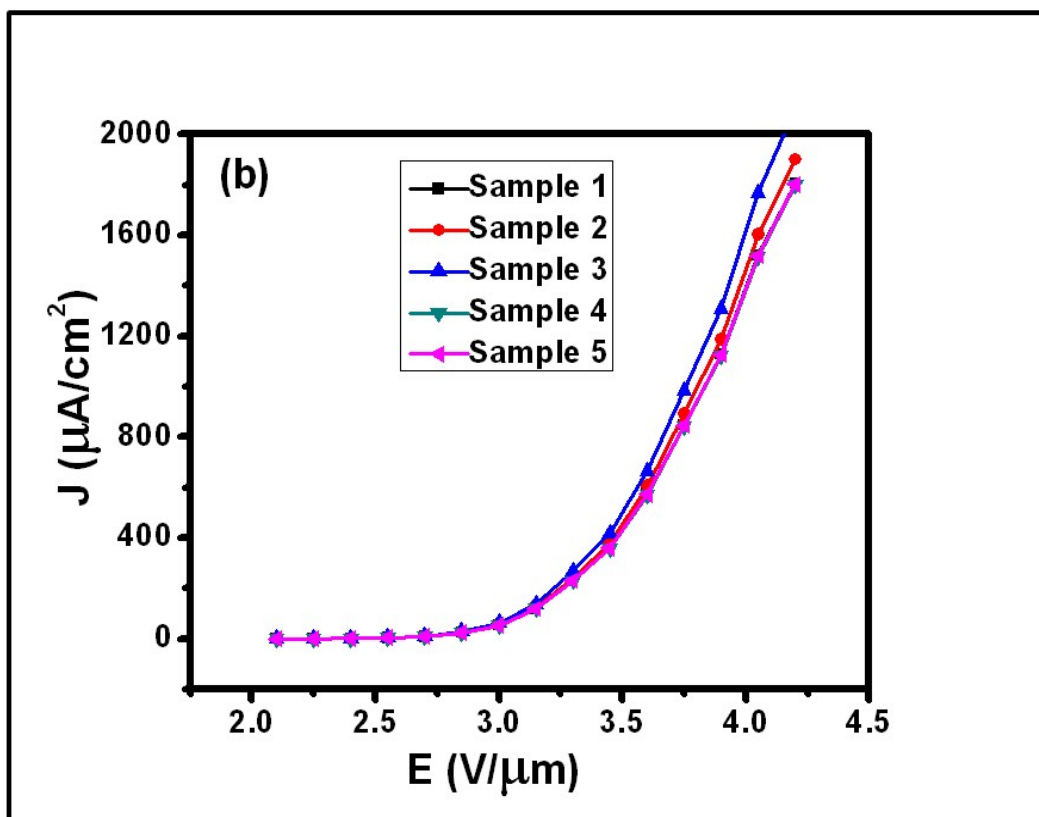


Figure S3 (b). Field emission characteristics of different as-synthesized samples of CNC samples (sample 1, sample 2, sample 3, sample 4 and sample 5). As evident from figure, all five samples are having almost similar FE behaviour indicating good reproducibility.