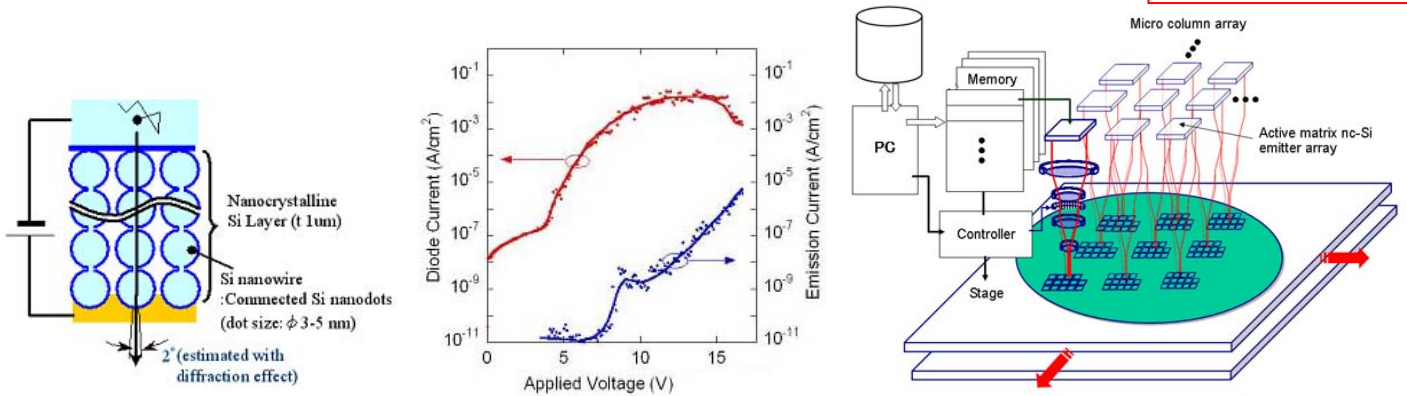
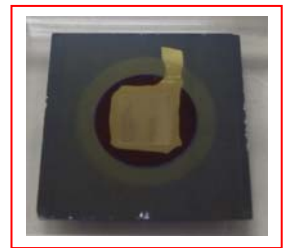
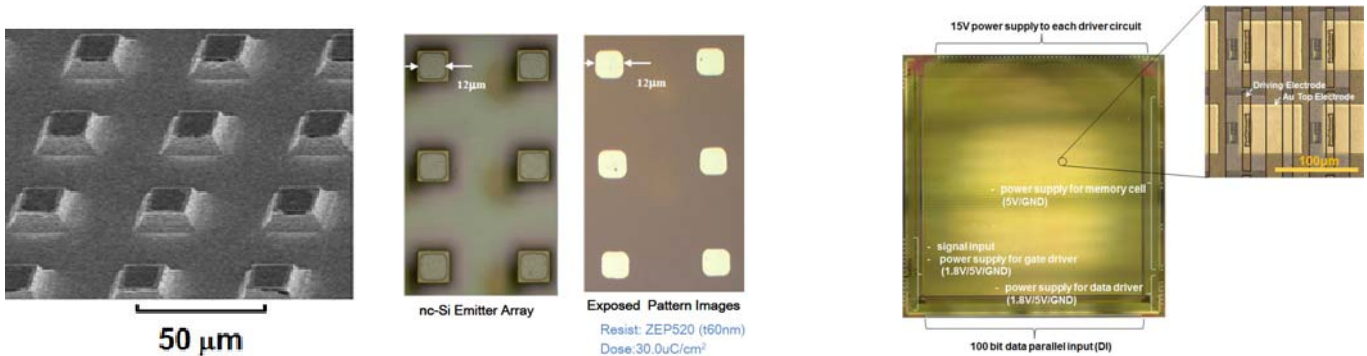


Massive Parallel Electron Beam Exposure System

(Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST))

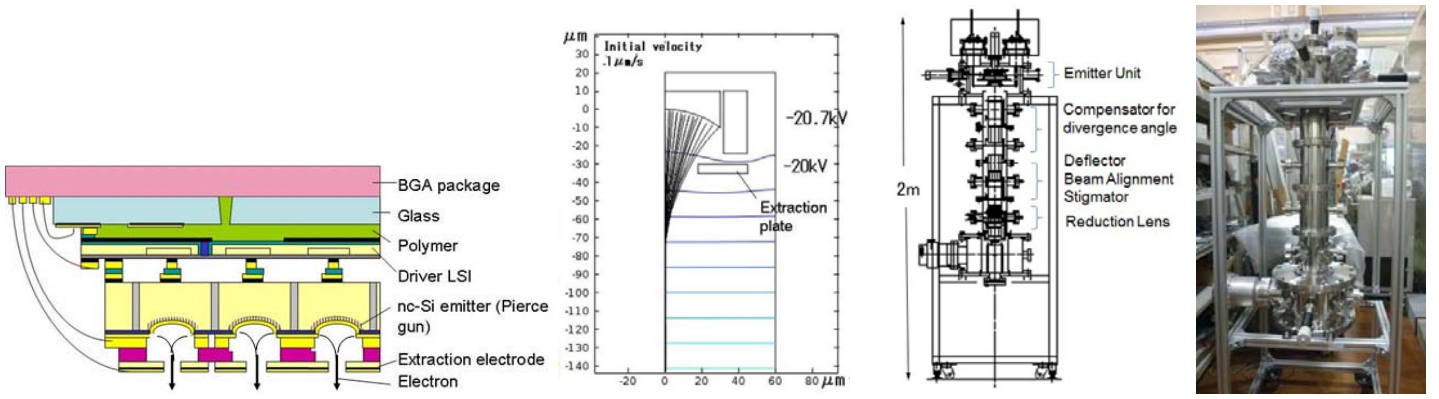


Principle of nano-crystalline (nc) Si emitter and concept of the electron beam exposure system using the nc-Si emitter

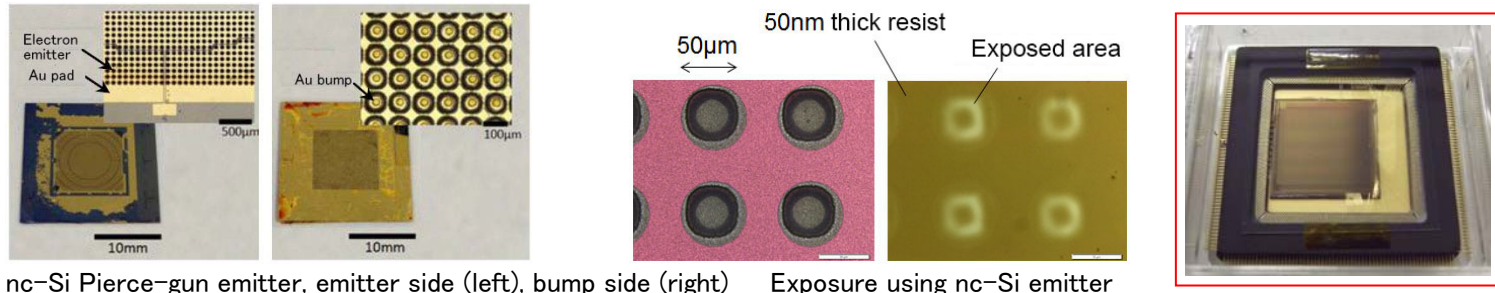


Planer type nc-Si emitter with through Si via and result of exposure CMOS LSI for driving active matrix electron emitter

N.Ikegami, T.Yoshida, A.Kojima, H.Ohyi, N.Koshida and M.Esashi., Active-Matrix nc-Si Electron Emitter Array for Massively Parallel Direct-Write Electron-Beam System, J. Micro/Nanolith. MEMS MOEMS 11, 3 (2012) 031406



Experiment of electron emission driven by CMOS LSI Fabrication of nc-Si emitter on CMOS LSI (under development)



nc-Si Pierce-gun emitter, emitter side (left), bump side (right) Exposure using nc-Si emitter

H.Nishino, S.Yoshino, S.Tanaka, M.Esashi, A.Kogima, N.Ikegami, N.Koshida, Basic study for fabrication of integrated Pierce-gun type area electron emitter for massive parallel electron beam exposure system, 2013 IEEJ convention, (2013/3/20 Nagoya) 3-127 (in Japanese)