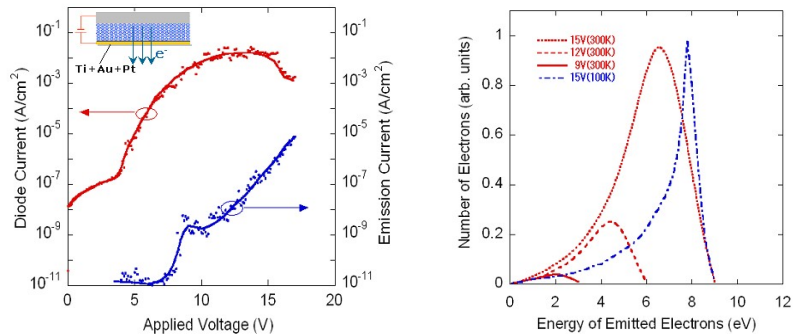


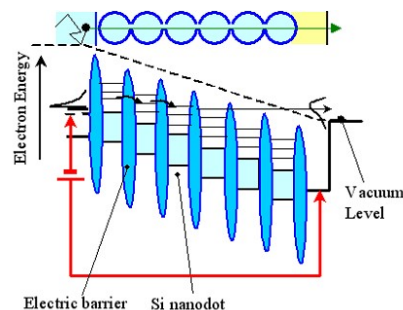
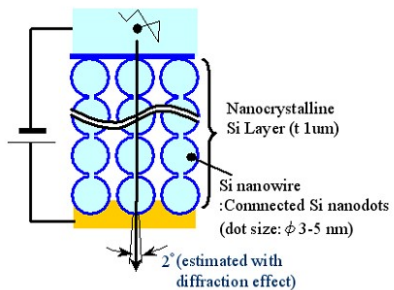
色収差の小さい面電子放出素子

Monochromatic surface electron emitter  
based on quantum confinement effect



Properties of IV & emission

Energy distribution of emitted electrons

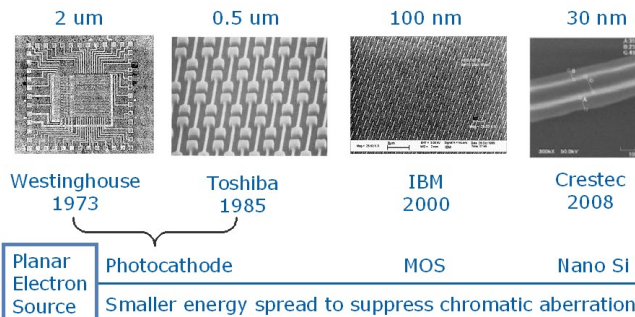


電子が散乱を受けない量子閉じ込め構造  
量子ドット間の連続トンネリングによるエネルギー損失の無い電子加速

弾道電子輸送 ⇒ Monochromatic electron emission

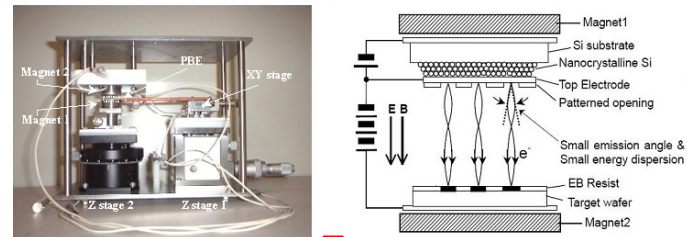
Ballistic electron transport and emission

History of EB projection (Not proximity) [1-4]

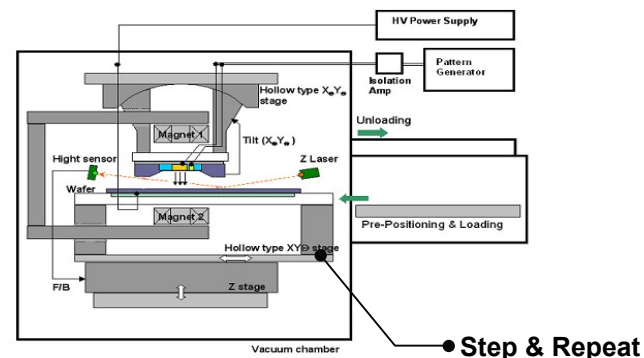


一括EB露光試作機 I → II (EB projection Prototype)

Test bench I (一括露光実験用)



Test bench II (製作中)



- Emission Current :  $\sim 350 \mu\text{A}/\text{cm}^2 \Rightarrow 0.3 \text{ sec}/\text{shot}$
- Accelerating Voltage :  $10 \sim 100 \text{ kV}$
- Magnetic Field :  $0.1 \sim 0.5 \text{ T}$

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 [2] I. Mori, K. Sugihara, C. Itoh, M. Tabata, and T. Shinozaki, Microelectronic Engineering **3**, 69 (1985).  
 [3] R.M. Tromp, IBM Journal of Research and Development **44**, 503 (2000).  
 [4] A. Kojima, H. Ohyi and N. Koshida, Journal of Vacuum Science and Technology **B26**, 2064 (2008).