

References

Chapter 1

- [1.1] J. Bardeen and W. H. Brattain, *Phys. Rev.* **74**, p.230, 1948
- [1.2] S. M. Sze, "Physics of semiconductor devices", 2nd ed., John-Wiley & Sons publisher, New York, p. 648, 1991.
- [1.3] S. Iannazzo "A survey of the present statue of vacuum microelectronics", *Solid-State Electronics*, 36, No.3, p301, 1993.
- [1.4] R. H. Fowler and L. W. Nordheim, "Electron emission in intense field," *Proc. R. SOC. A* **229**, p. 173, 1928.
- [1.5] C. A. Spindt, I. Brodie, L. Humpfrey, and E. R. Westerberg, "Electrical properties of thin-film field emission cathodes with molybdenum cones," *J. Appl. Phys.*, 47, p. 5248, 1976.
- [1.6] R. Meyer, "Recent development on microtips display at LETI," *IVMC'91 Technical Digest*, p. 6, 1991.
- [1.7] N. E. McGruer and K. Warner, "Oxidation-sharpened gated field emitter array process," *IEEE Trans. Electron Devices*, 38, No. 10, p. 488, 1991.
- [1.8] S. E. Huq and L. Chen, "Fabrication of sub-10 nm silicon tips: a new approach," *J. Vac. Sci. & Technol. B.*, 13(6), p. 2718, 1995.
- [1.9] D. W. Branston and D. Stephani, "Field emission from metal-coated Silicon

- tips,” IEEE Trans. Electron Devices, 38, No. 10, p. 2329, 1991.
- [1.10] V. V. Zhirnov and E. I. Givargizov, “Field emission from silicon spikes with diamond coating,” J. Vac. Sci. & Technol. B., 13(2), p. 418, 1995.
- [1.11] J. H. Jung and B. K. Ju, “Enhancement of electron emission efficiency and stability of molybdenum field emitter array by diamond-like carbon coating,” IEEE IEDM’96, p. 293, 1996.
- [1.12] R. E. Burgess, H. Kroemer, and J. M. Honston, “Corrected value of Fowler-Norheim field emission function $v(y)$ and $s(y)$,” Phys. Rev., 1, No. 4, p. 515, 1953.
- [1.13] R. B. Marcus, T. S. Ravi, T. Gmitter, H. H. Busta, J. T. Niccum, K. K. Chin, and D. Liu, “Atomically sharp silicon and metal field emitters,” IEEE Trans. Electron Devices, 38, p. 2289, 1991.
- [1.14] P. Vaudaine and R. Meyer, “Microtips fluorescent display,” IEEE IEDM’91, p. 197, 1991.
- [1.15] C. Curtin, “The field emission display,” International Display Research Conference p. 12, 1991.
- [1.16] C. A. Spindt, C. E. Holland, I. Brodie, J. B. Mooney, and E. R. Westerberg, “Field-emitter array applied to vacuum fluorescent displays,” IEEE Trans. Electron Devices, 36, No. 1, p. 225, 1989.

- [1.17] David A. Cathey, "Field emission displays," *Information Display*, p. 16, Oct., 1995.
- [1.18] "Pixtech to produce color FEDs from November," News reported in *Nikkei Electronics ASIA*, p. 42, Nov., 1995.
- [1.19] H. G. Kosmahl, "A wide-bandwidth high-gain small size distributed amplifier with field-emission triodes (FETRODE's) for the 10 to 300 GHz frequency range," *IEEE Trans. Electron Devices*, 36, No.11, p. 2715, 1989.
- [1.20] P. M. Larry, E. A. Netteshiem, Y. Goren, C. A. Spindt, and A. Rosengreen, "10 GHz turned amplifier based on the SRI thin film field emission cathode," *IEEE IEDM'88*, p. 522, 1988.
- [1.21] C. A. Spindt, C. E. Hollard, A. Rosengreen, and I. Brodie, "Field emitter array development for high frequency operation," *J. Vac. Sci. & Technol. B.*, 11, p. 486, 1993.
- [1.22] C. A. Spindt, "Microfabricated field emission and field ionization sources," *Surface Science*, 266, p. 145, 1992.
- [1.23] T. H. P. Chang, D. P. Kern, et al., "A scanning tunneling microscope controlled field emission micro probe system," *J. Vac. Sci. & Technol. B.*, 9, p. 438, 1991.
- [1.24] H. H. Busta, J. E. Pogemiller, and B. J. Zimmerman, "The field emission

triode as a displacement/process sensor,” J. Micromech. Microeng., p. 45, 1993.

[1.25] H. C. Lee and R. S. Huang, “A novel field emission array pressure sensor,” IEEE Transducers- International Solid-State Sensors and Actuators, p. 126, 1991.

[1.26] D. G. Fink and D. Christiansen, Electronic Engineering Handbook, McGraw-Hill, New York, 1989.

[1.27] H. Imura, S. Tsuida, M. Takahasi, A. Okamoto, H. Makishima, and S. Miyano, “Electron gun design for traveling wave tubes (TWTs) using a field emitter array (FEA) cathode,” IEEE IEDM’97, p. 721, 1997.

[1.28] C. A. Spindt, “A thin film field emission cathode”, Communications, p. 3504, 1968.

[1.29] S. Itoh, T. Watanabe, T. Yamaura, and K. Yano, “A challenge to field emission displays,” in Proc. Asia Display, p. 617, Oct. 1995 .

[1.30] C. A. Spindt, I. Brodie, L. Humphrey, and E. R. Westerberg, “Physical properties of thin-film field emission cathodes with molybdenum cones,” J. Appl. Phys., 47, no. 12, p. 5248, 1976.

[1.31] R. Meyer, A. Ghis, P. Rambaud, and F. Muller, “Microtips fluorescent display,” in Proc. Japan Display, p. 512–515, Sept./Oct. 1986.

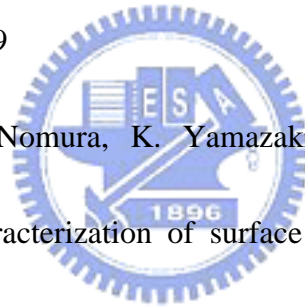
- [1.32] S. Itoh AND M. Tanaka, “Current Status of Field-Emission Displays”,
Proceedings of the IEEE, VOL. 90, NO. 4, APRIL 2002
- [1.33] M. Ding, H. Kim, and A. I. Akinwande “ Highly Uniform and Low Turn-On
Voltage Si Field Emitter Arrays Fabricated Using Chemical Mechanical
Polishing”, IEEE ELECTRON DEVICE LETTERS, VOL. 21, NO. 2, 2000
- [1.34] J Itoh, Y Tohma, K Morikawa, S. Kanemaru and K. Shimizu “ Fabrication
of double gate Si field emitter arrays for focused electron beam generation”
J. Vac. Sci. & Technol. B., Vol. 13(5), p. 1968, 1995.
- [1.35] V. V. Zhirnov, G. J. Wojak, W. B. Choi, J. J. Cuomo and J. J. Hern, “ Wide
band gap materials for field emission devices” J. Vac. Sci. & Technol. A.,
Vol. 15(3), 1997.
- [1.36] N. Kumer, H. K. Schmidt and M. H. Clark, Proc. Sco. Inf. Display. 43,1994
- [1.37] Y. K. Kwon, T. H. Lee, S. G. Kim, P. Jund, D. Tomanek, and R. E. Smalley.
Phys Rev. Lett., **79**, p. 2065, 1997
- [1.38] Y. Saito, Asia Display/IDW’01, “Carbon Nanotubes: Preparation and
physical Properties,” p. 11, 2001
- [1.39] X. Xu and G. R. Brandes, “A method for fabricating large-area, patterned,
carbon nanotube field emitters,” Appl. Phys. Lett., Vol. 74, p. 2549, 1999.
- [1.40] A. M. Rao, D. Jacques, and R. C. Haddon, “In situ-grown carbon nanotube

arrays with excellent field emission characteristics,” Appl. Phys. Lett., Vol. 76, p. 3813, 2000.

[1.41] H. Murakami, M. Hirakawa, C. Tanaka, and H. Yamakawa, “Field emission from well-aligned, patterned, carbon nanotube emitters,” Appl. Phys. Lett., Vol. 76, p. 1176, 2000.

[1.42] W. B. Choi, D. S. Chung, J. H. Kang, H. Y. Kim, Y. W. Jin, I. T. Han, Y. H. Lee, J. E. Jung, N. S. Lee, G. S. Park, and J. M. Kim, “Fully sealed, high-brightness carbon-nanotube field-emission display,” Appl. Phys. Lett., Vol. 75, p. 3129, 1999

[1.43] K. Yamamoto, I. Nomura, K. Yamazaki, S. Uzawa and K. Hatanaka,”
Fabrication and characterization of surface conduction electron emitters”,
SID Digest, p. 1933, 2005



[1.44] T. Oguchi, E. Yamaguchi, K. Sasaki, K. Suzuki, S. Uzawa and K. Hatanake,”
A 36-inch surface conduction electron emitter display (SED)”, SID Digest, p.
1929, 2005

[1.45] W. Lei, B. P. Wang, H. C. Yin, Y. X. Wu, and C. Z. Chang, “Influence of the fringe field and the field interaction on the emission performance of a diode emitter array,” Nuclear Ins. and Methods in Phys. Research A., **451**, p. 389, 2000.

- [1.46] N. V. Egorov, and A. A. Almazov, "Optimization of multi-tip field emission electron source," *Vacuum* **52**, p. 295, 1999.
- [1.47] O. Groning, O. M. Kuttel, C. Emmenegger, P. Groning, and L. Schlapbach, "Field emission properties of carbon nanotubes," *J. Vac. Sci. & Technol. B.*, Vol. 18 (2), p. 665, 2000.

Chapter 2

- [2.1] C. T. White, D. H. Robertson and J. W. Mintmire, " Helical and rotational symmetries of nanoscale graphitic tubules" *Phys. Rev. B.*, **47**, p. 5485, 1993.
- [2.2] J. W. G. Wildoer, L. C. Venema, A. Rinzler, R. E. Smalley and C. Dekker, "Electronic structure of atomically resolved carbon nanotubes " *Nature*, 391, p.59, 1998
- [2.3] F. G. Tantair, L. C. Chen and S. L. Wei, W. K. Hong, K. H. Chen, H. C. Cheng "High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips" *J. Vac. Sci. Technol. B.*, 18(3) p.1207, 2000
- [2.4] P. Vaudaine and R. Meyer, "Microtips fluorescent display," *IEEE IEDM'91*, p. 197, 1991.
- [2.5] H. H. Busta, J. E. Pogemiller, and B. J. Zimmerman, "The field emission triode as a displacement/process sensor," *J. Micromech. Microeng.*, p. 45,

1993.

- [2.6] T. H. P. Chang et al., “A scanning tunneling microscope controlled field emission microprobe system,” *J. Vac. Sci. & Technol. B.*, **9**, p. 438, 1991.
- [2.7] . A. Spindt, “Microfabricated field emission and field ionization sources,” *Surf. Sci.*, **266**, p. 145, 1992.
- [2.8] C. A. Spindt, “A thin film field emission cathode”, *Communications*, p. 3504, 1968.
- [2.9] W. A. de Heer, A. Chatelain and D. Ugarte, “A Carbon Nanotube Field-Emission Electron Source,” *Science* **270**, p. 1179, 1995.
- [2.10] P. G. Collins and A. Zettl, “A simple and robust electron beam source from carbon nanotubes” *Appl. Phys. Lett.*, **69**, p. 1969, 1996.
- [2.11] Q. H. Wang, T. D. Corrigan, J. Y. Dai and R. P. H. Chang, “Field emission from nanotube bundle emitters at low fields,” *Appl. Phys. Lett.*, **70**, p. 3308, 1997.
- [2.12] Z. F. Ren, Z. P. Huang, J. W. Xu, J. H. Wang, P. Bush, M. P. Siegal and P. N. Provencio, “Synthesis of Large Arrays of Well-Aligned Carbon Nanotubes on Glass,” *Science* **282**, p. 1105, 1998.
- [2.13] J. M. Bonard, J. P. Salvetat, T. Stockli, W. A. de Heer, L. Forro and A. Chatelain, “Field emission from single-wall carbon nanotube films,” *Appl.*

Phys. Lett. **73**., p. 918, 1998.

[2.14] A.G. Rinzier, J. Liu, H. Dai, P. Nikolaev, C. B. Huffman, F. J. Rodriguez-Macias, P. J. Boul, A. H. Lu, D. T. Colbert, R. S. Lee, J. E. Fischer, A. M. Rao, P. C. Eklund and R. E. Smalley, "Field enhancement of optical radiation in the nearfield of scanning probe microscope tips," Appl. Phys. A., **67** , p. 29, 1998.

[2.15] J. M. Mao, L. F. Sun, L. X. Qian, Z. W. Pan, B. H. Chang, W. Y. Zhou, G. Wang and S. S. Xie, "Growth of carbon nanotubes on cobalt disilicide precipitates by chemical vapor deposition," Appl. Phys. Lett., **72**, p.3297, 1998.

[2.16] C. J. Lee, K. H. Son, J. Park, J. E. Yoo, Y. Huh and J. Y. Lee, "Low temperature growth of vertically aligned carbon nanotubes by thermal chemical vapor deposition," Chem. Phys. Lett. **338** , p. 113, 2001.

[2.17] H. Jantoljak, J. P. Salvetat, L. Forro and C. Thomsen, "Low-energy Raman-active phonons of multiwalled carbon nanotubes," Appl. Phys. A., **67** p. 113, 1998.

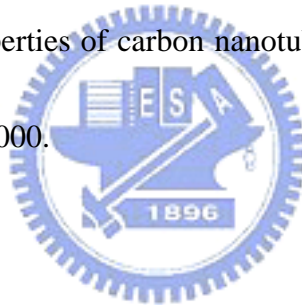
[2.18] Y. C. Choi, D. J. Bae, Y. H. Lee, B. S. Lee, G. S. Park, W. B. Choi, N. S. Lee and J. M. Kim, "Growth of carbon nanotubes by microwave plasma-enhanced chemical vapor deposition at low temperature," J. Vac. Sci.

& Technol. A., **18**, p. 1864, 2000.

[2.19] W. Lei, B. P. Wang, H. C. Yin, Y. X. Wu and C. Z. Chang, “Influence of the fringe field and the field interaction on the emission performance of a diode emitter array,” Nuclear Instrum. Methods Phys. Research A **451**, p. 389, 2000.

[2.20] N. V. Egorov and A. A. Almazov, “Optimization of multi-tip field emission electron source,” Vacuum **52.**, p. 295, 1999.

[2.21] O. Groning, O. M. Kuttel, C. Emmenegger, P. Groning, and L. Schlapbach, “Field emission properties of carbon nanotubes,” J. Vac. Sci. & Technol. B, Vol. 18 (2), p. 665, 2000.



Chapter 3

[3.1] P. G. Collins and A. Zettl, “ A simple and robust electron beam source from carbon nanotubes” Appl. Phys. Lett., **69**, p.1969, 1996.

[3.2] Q. H. Wang, T. D. Corrigan, J. Y. Dai and R. P. H. Chang, “Field emission from nanotube bundle emitters at low fields,” Appl. Phys. Lett., **70**, p. 3308, 1997.

[3.3] Z. F. Ren, Z. P. Huang, J. W. Xu, J. H. Wang, P. Bush, M. P. Siegal and P. N. Provencio, “ Synthesis of Large Arrays of Well-Aligned Carbon Nanotubes

on Glass,” *Science* **282**, p. 1105, 1998.

- [3.4] J. M. Bonard, J. P. Salvetat, T. Stockli, W. A. de Heer, L. Forro and A. Chatelain, “Field emission from single-wall carbon nanotube films,” *Appl. Phys. Lett.*, **73**, p. 918, 1998.
- [3.5] F. G. Tantair, L. C. Chen and S. L. Wei, W. K. Hong, K. H. Chen, H. C. Cheng “High current density field emission from arrays of carbon nanotubes and diamond-clad Si tips” *J. Vac. Sci. Technol. B.*, 18(3), p.1207, 2000
- [3.6] A.G. Rinzler, J. Liu, H. Dai, P. Nikolaev, C. B. Huffman, F. J. Rodriguez-Macias, P. J. Boul, A. H. Lu, D. T. Colbert, R. S. Lee, J. E. Fischer, A. M. Rao, P. C. Eklund and R. E. Smalley, “Field enhancement of optical radiation in the nearfield of scanning probe microscope tips,” *Appl. Phys. A.*, **67**, p. 29, 1998.
- [3.7] J. M. Mao, L. F. Sun, L. X. Qian, Z. W. Pan, B. H. Chang, W. Y. Zhou, G. Wang and S. S. Xie, “Growth of carbon nanotubes on cobalt disilicide precipitates by chemical vapor deposition,” *Appl. Phys. Lett.* **72.**, p.3297, 1998.
- [3.8] C. J. Lee, K. H. Son, J. Park, J. E. Yoo, Y. Huh and J. Y. Lee, “Low temperature growth of vertically aligned carbon nanotubes by thermal chemical vapor deposition,” *Chem. Phys. Lett.*, **338** , p.113, 2001.

- [3.9] H. Jantoljak, J. P. Salvetat, L. Forro and C. Thomsen, "Low-energy Raman-active phonons of multiwalled carbon nanotubes," *Appl. Phys. A.*, **67**, p. 113, 1998.
- [3.10] Y. C. Choi, D. J. Bae, Y. H. Lee, B. S. Lee, G. S. Park, W. B. Choi, N. S. Lee and J. M. Kim, "Growth of carbon nanotubes by microwave plasma-enhanced chemical vapor deposition at low temperature," *J. Vac. Sci. & Technol. A.*, **18**, p.1864, 2000.
- [3.11] W. Lei, B. P. Wang, H. C. Yin, Y. X. Wu and C. Z. Chang, "Influence of the fringe field and the field interaction on the emission performance of a diode emitter array," *Nuclear Instrum. Methods Phys. Research A.*, **451**, p.389, 2000.
- [3.12] N. V. Egorov, and A. A. Almazov, "Optimization of multi-tip field emission electron source," *Vacuum* **52**, p. 295, 1999.
- [3.13] O. Groning, O. M. Kuttel, C. Emmenegger, P. Groning, and L. Schlapbach, "Field emission properties of carbon nanotubes," *J. Vac. Sci. & Technol. B*, Vol. 18 (2), p. 665, 2000.
- [3.14] S. H. Jeong, O. J. Lee, K. H. Lee, S. H. Oh, and C. G. Park, "Packing Density Control of Aligned Carbon Nanotubes," *Chem. Mater.*, **14**, p.4003,

2002.

- [3.15] J. H. Choi, T. Y. Lee, S. H. Choi, J. H. Han, J. B. Yoo, C. Y. Park, T. Jung, S. Yu, W. Yu, I. T. Han and J.M. Kin, "Density control of carbon nanotubes using NH_3 plasma treatment of Ni catalyst layer," *Thin Solid Films*, **435**, p.318 , 2003
- [3.16] C.P. Juan, C.T. Tsai, K.H. Chen, L.J. Chen, H.C. Cheng, " Effects of High-Density Oxygen Plasma Posttreatment on Field Emission Properties of Carbon Nanotube Field-Emission Displays," *Jpn. J. Appl. Phys.*, **44**(11), p.8231, 2005
- [3.17] J. Yotani, S. Uemura, T. Nagasako, H. Kurachi, H. Yamada, T. Ezaki, T. Maesoba, T. Nakao, M. Ito, T. Ishida and Y. Saito, "Emission Enhancement by Excimer Laser Irradiation over a Weblike Carbon Nanotube Layer," *Jpn. J. Appl. Phys.*, **43**(11B), p.L1459, 2004.
- [3.18] S.J. Henley, C.H.P. Poa, A.A.D.T. Adikarri, C.E. Giusca, J.D. Carey and S. R.P. Silva, "Excimer laser nanostructuring of nickel thin films for the catalytic growth of carbon nanotubes," *Appl. Phys. Lett.*, Vol. **84**(20), p. 4035, 2004.

Chapter 4

- [4.1] S. Iijima, "Helical microtubules of graphitic carbon," *Nature*, Vol. 354, p. 56, 1991.
- [4.2] M. Chhowalla, C. Ducati, N. L. Rupesinghe, K. B. K. Teo, and G. A. J. Amaratunga, "Field emission from short and stubby vertically aligned carbon nanotubes," *Appl. Phys. Lett.*, **79**, p.2079, 2001.
- [4.3] S. S. Wong, J. D. Harper, J. P. T. Lansbury, and C. M. Lieber, "Carbon Nanotube Tips: High-Resolution Probes for Imaging Biological Systems," *J. Am. Chem. Soc.*, **120**, p.603, 1998.
- [4.4] A. Modi, N. Koratkar, E. Lass, B. Wei, and P. M. Ajayan, "Miniaturized gas ionization sensors using carbon nanotubes," *Nature (London)* **424**, p.171, 2003.
- [4.5] W. B. Choi, J. U. Chu, K. S. Jeong, E. J. Bae, J. W. Lee, J. J. Kin, and J. O. Lee, "Ultrahigh-density nanotransistors by using selectively grown vertical carbon nanotubes," *Appl. Phys. Lett.*, **79**, p.3696, 2001.
- [4.6] J. Haruyama, I. Takesue, and Y. Sato, "Coulomb blockade in a single tunnel junction directly connected to a multiwalled carbon nanotube," *Appl. Phys. Lett.*, **77**, p.2891, 2000.
- [4.7] Y. K. Kwon, T. H. Lee, S. G. Kim, P. Jund, D. Tomanek, and R. E. Smalley. *Phys Rev. Lett.*, **79**, p.2065, 1997.

- [4.8] Y. Saito, Asia Display/IDW'01, "Carbon Nanotubes: Preparation and physical Properties," p.11, 2001.
- [4.9] C.M. Chen, M. Chen, F. C. Leu, S. Y. Hsu, S. C. Wang, S. C. Shi, and C. F. Chen, "Purification of multi-walled carbon nanotubes by microwave digestion method," *Diamond Relat. Mater.* **13**, p.1182, 2004.
- [4.10] C. F. Chen, C. L. Tsai, and C. L. Lin, " The characterization of boron-doped carbon nanotube arrays," *Diamond Relat. Mater.*, **12**, p.1500, 2003.
- [4.11] S. H. Jeong, O. J. Lee, K. H. Lee, S. H. Oh, and C. G. Park, "Packing Density Control of Aligned Carbon Nanotubes," *Chem. Mater.*, **14**, p.4003, 2002.
- [4.12] J. H. Choi, T. Y. Lee, S. H. Choi, J. H. Han, J. B. Yoo, C. Y. Park, T. Jung, S. Yu, W. Yu, I. T. Han and J.M. Kin, "Density control of carbon nanotubes using NH₃ plasma treatment of Ni catalyst layer," *Thin Solid Films*, **435**, p.318, 2003
- [4.13] Y. Tu, Z.P. Huang, D.Z. Wang, J. G. Wen and Z. F. Ren, "Growth of aligned carbon nanotubes with controlled site density," *Appl. Phys. Lett.*, **80**, p.4018, 2002
- [4.14] S. J. Henley, C. H. P. Poa, A. A. D. T. Adikaari, C. E. Giusca, J. D. Carey and S. R. P. Silva, "Excimer laser nanostructuring of nickel thin films for the catalytic growth of carbon nanotubes," *Appl. Phys. Lett.*, **84**, p.4035, 2004.

- [4.15] C. H. Poa, S. R. P. Silva, P. C. P. Watts, W. K. Hsu, H. W. Kroto and D. R. M. Walton, "Field emission from nonaligned carbon nanotubes embedded in a polystyrene matrix," *Appl. Phys. Lett.*, **80**, p.3189, 2002.

Chapter 5

- [5.1] S. Iijima, "Helical microtubules of graphitic carbon," *Nature (London)* **354**, p.56, 1991.
- [5.2] L.Nilsson, O.Groening, C.Emmenegger, O. Kuettel, E. Schaller, L. Schlapbach, H. Kind, J. M. Bonard and K. Kern, "Scanning field emission from patterned carbon nanotube films ," *Appl. Phys. Lett.*, **76**, p.2071, 2000.
- [5.3] J.H. Huang, C.C. Chuang and C.H. Tsai, "Effect of nickel thickness and microwave power on the growth of carbon nanotubes by microwave-heated chemical vapor deposition," *Microelectronic Engineering* **66**, p.10 ,2003.
- [5.4] K.J Chen, W.K. Hong, C.P. Lin, K.H. Chen, L.C. Chen, H.C. Cheng, "Improvement of Field Emission Characteristics of Carbon Nanotubes by Excimer Laser Treatment," *Jpn. J. Appl. Phys.*, **41**, p.6132, 2002.
- [5.5] K.H. Park, H.J. Han, S. Choi, K.M. Lee, S. Lee and K.H. Koh, "Growth and evaluation of nanostructured carbon films for triode field emitter application," *J. Vac. Sci. Technol.*, **B21**, p.562, 2003.

- [5.6] A.M. Rao, D. Jacques, R.C. Haddon, W. Zhu, C. Bower and S. Jin, “In situ-grown carbon nanotube array with excellent field emission characteristics,” *Appl. Phys. Lett.*, **76**, p.3813, 2000
- [5.7] Z.W. PAN, F.C.K. Au, H.L. Lai, W.Y. Zhou, L.F. Sun, Z.Q. Liu, D.S. Tang, C.S. Lee, S.T. Lee and S.S. Xie, “Very Low-Field Emission from Aligned and Opened Carbon Nanotube Arrays,” *J. Phys. Chem.* **B105**, p.1519 ,2001.

Chapter 6

- [6.1] Y. K. Kwon, T. H. Lee, S. G. Kim, P. Jund, D. Tomanek, and R. E. Smalley. *Phys Rev. Lett.*, **79**, p. 2065, 1997.
- [6.2] Y. Saito, “ Carbon Nanotubes: Preparation and physical Properties,”*Asia Display/IDW’01*, p. 11, 2001.
- [6.3] W. Lei, B. P. Wang, H. C. Yin, Y. X. Wu, and C. Z. Chang,” “Influence of the fringe field and the field interaction on the emission performance of a diode emitter array,” *Nuclear Ins. and Methods in Phys. Reaerch A.* **451**, p. 389, 2000.
- [6.4] N. V. Egorov, and A. A. Almazov, “Optimization of multi-tip field emission electron source,” *Vacuum* **52**, p. 295, 1999.
- [6.5] O. Groning, O. M. Kuttel, C. Emmenegger, P. Groning, and L. Schlapbach,

“Field emission properties of carbon nanotubes,” *J. Vac. Sci. & Technol. B.*, **18**, p. 665, 2000.

[6.6] Y. W. Zhu, F. C. Cheong, T. Yu, X. J. Xu, C. T. Lim, J. T. L. Thong, Z. X. Shen, C. K. Ong, Y. J. Liu, A.T.S. Wee and C. H. Sow., “Effects of CF₄ plasma on the field emission properties of aligned multi-wall carbon nanotube films,” *Carbon* **43**, p. 395, 2005.

[6.7] K. Yu, Z. Zhu, Y. Zhang, Q. Li, W. Wang, L. Luo, X. Yu, H. Ma, Z. Li and T. Feng, “Change of surface morphology and field emission property of carbon nanotube films treated using a hydrogen plasma,” *Applied Surface Scienc* **225**, p. 380, 2004.

[6.8] J. Zhang, T. Feng, W. Yu, X. Liu, X. Wang and Q. Li., “Enhancement of field emission from hydrogen plasma processed carbon nanotubes,” *Diamond and Related Materials* **13**, p.54, 2004.

[6.9] K. S. Ahn, J. S. Kim, C. O. Kim and J. P. Hong, “Non-reactive rf treatment of multiwall carbon nanotube with inert argon plasma for enhanced field emission,” *Carbon* **41**, p. 2481, 2003.

[6.10] J. H. Han, C. H. Lee, D.Y. Jung, C. W. Yang, J. B. Yoo, C. Y. Park, H. J. Kim, S. G. Yu, W. K. Yi, G.S. Park, I. T. Han, N. S. Lee, J. M. Kim, “NH₃ effect on the growth of carbon nanotubes on glass substrate in plasma

enhanced chemical vapor deposition,” Thin Solid Films **409** , p.120, 2002.

- [6.11] C. Y. Zhi, X. D. Bai and E. G. Wang, “Raman characterization of boron carbonitride nanotubes,” Appl. Phys. Lett., **80**, p. 3590, 2002.
- [6.12] Y. Chen, D. T. Shaw and L. Guo, “Field emission of different oriented carbon nanotubes ,”Appl. Phys. Lett., **76** , p.2469 ,2000.

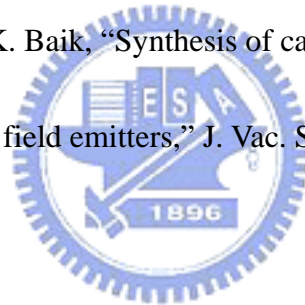
Chapter 7

- [7.1]. C. A. Spindt et al., “ A thin film field emission cathode”, Adv. Elec. Electron Phys. suppl. **4**, p. 1, 1968.
- [7.2] I. Brodie et al.: Proc. IEEE, 1994.
- [7.3] H. F. Gray: Information Display **3**, p. 9, 1993.
- [7.4] McGruer and A. C. Johnson: Tech. Dig. 4th IVMC, p.68, 1991.
- [7.5] L. P. Muray, U. Staufer, E. Bassons, D. P. Kern, and T. H. P. Chang, “Experimental evaluation of a scanning tunneling microscope-microlens system,” J. Vac. Sci. & Technol. B **9**, p. 2955, 1991.
- [7.6] G. W. Jones, C. T. Sune and S. K. Jones: SPIE 1671, p. 201, 1992.
- [7.7] J. H. Park, H. I. Lee, H. S. Tae, J. S. Huh and J. H. Lee, “Lateral field emission diodes using SIMOX wafer,” IEEE Trans. Electron Devices **44**, p. 1018, 1997.

- [7.8] M. S. Lim, C. M. Park, M. K. Han and Y. I. Choi, "In-situ vacuum-sealed lateral FEAs with low turn-on voltage and high transconductance," IEEE Trans. Electron Devices **48**, p.161, 2001.
- [7.9] C. S. Lee, J. D. Lee and C. H. Han, "A new lateral field emission device using chemical-mechanical polishing," IEEE Electron Devices Letters **21**, p.479, 2000.
- [7.10] S. S. Park, D. I. Park, S. H. Hahm, J. H. Lee, H. C. Choi, and J. H. Lee, "Fabrication of a lateral field emission triode with a high current density and high transconductance using the local oxidation of the polysilicon layer," IEEE Trans. Electron Devices **46**, p. 1283, 1999.
- [7.11] V. Milanovic, L. Doherty, D. A. Teasdale, S. Parsa, and K. S. J. Pister, "Micromachining technology for lateral field emission devices," IEEE Trans. Electron Devices **48**, p. 166, 2001.
- [7.12] M. Yun, A. Turner, R. J. Roedel, and M.N. Kozicki, "Novel lateral field emission device fabricated on silicon-on-insulator material," J. Vac. Sci. & Technol. B **17**, p. 1561, 1999.
- [7.13] A. G. Rinzler, J. H. Hafner, P. Nikolaev, L. Lou, S. G. Kim, D. Tomanek, P. Nordlander, D. T. Colbert and R. E. Smalley: Science **269**, p. 1550, 1995.
- [7.14] S. Dimitrijevic, J. C. Withers, V. P. Mammana, O. R. Monteiro, J. W. Ager

III, and I. G. Brown, "Electron emission from films of carbon nanotubes and *ta*-C coated nanotubes," *Appl. Phys. Lett.* **75**, p. 2680, 1999.

- [7.15] A. N. Obraztsov, I. Pavlovsky, A. P. Volkov, E. D. Obraztsova, A. L. Chuvilin and V. L. Kuznetsov, "Aligned carbon nanotube films for cold cathode applications," *J. Vac. Sci. & Technol. B* **18**, p. 1059, 2000.
- [7.16] O. Groning, O. M. Kuttel, Ch. Emmenegger, P. Groning and L. Schlapbach, "Field emission properties of carbon nanotubes," *J. Vac. Sci. & Technol. B* **18**, p. 665, 2000.
- [7.17] Y. J. Yoon and H. K. Baik, "Synthesis of carbon nanotubes by chemical vapor deposition for field emitters," *J. Vac. Sci. & Technol. B* **19**, p. 27, 2001.
- [7.18] M. R. Chiang, K. S. Liu, T. S. Lai, C. H. Tsai, H. F. Cheng, and I. N. Lin, "Electron field emission properties of pulsed laser deposited carbon films containing carbon nanotubes," *J. Vac. Sci. & Technol. B* **19**, p.1034, 2001.
- [7.19] Q. H. Wang, T. D. Corrigan, J. Y. Dai, and R. P. H. Chang, "Field emission from nanotube bundle emitters at low fields," *Appl. Phys. Lett.*, **70**, p.3308, 1997.
- [7.20] J. I. Sohn, S. Lee, Y. H. Song and K. S. Nam, "Patterned selective growth of carbon nanotubes and large field emission from vertically well-aligned



carbon nanotube field emitter arrays,” Appl. Phys. Lett., **78**, p. 901, 2001.

[7.21] Y. Wei, C. Xie, K. A. Dean and B. F. Coll, “Stability of carbon nanotubes under electric field studied by scanning electron microscopy,” Appl. Phys. Lett., **79**, p.4527, 2001.

[7.22] Y. Chen, D. T. Shaw and L. Guo, “Field emission of different oriented carbon nanotubes,” Appl. Phys. Lett. **76**, p. 2469, 2000.

