

REFERENCES:

- Askeland, D.R. and Phule P.P. (2004). *Essentials of Materials Science and Engineering*, Thomson. p.132.
- Banerjee, C., Narayanan, K.L., Haga, K., Stritharathikhun, J., Miyajima, S., Yamada, A. and Konagai, M. (2007). Fabrication of microcrystalline cubic silicon carbide/ crystalline silicon heterojunction solar cell by hot-wire chemical vapour deposition. *Jpn. J. Appl. Phys.* **46**. 1-6.
- Calcagno, L., Compagnini, G., Foti, G., Grimaldi, M.G. and Musumeci, P. (1996). Carbon clustering in Si_{1-x}C_x formed by ion implantation. *Nuclear Instruments and Methods in Physics Research B.* **120**. 121-124.
- Calcagno, L., Musumeci, P., Roccaforte, F., Bongiorno, C. and Foti, G. (2001). Crystallisation mechanism of amorphous silicon carbide. *Applied Surface Science.* **184**. 123-127.
- Calcagno, L., Musumeci, P., Roccaforte, F., Bongiorno, C. and Foti, G. (2002). Crystallization process of amorphous silicon-carbon alloys. *Thin Solid Films.* **411**. 298-302.
- Calcagno, L. and Raineri, V. (2002). Depth carrier profiling in SiC. *Current Opinion in Solid State and Materials Science.* **6**. 47-54.
- Chang, S-S. and Sakai, A. (2004). Luminescence properties of spark-processed SiC. *Materials Letters.* **58**. 1212-1217.
- Chen, T., Huang, Y., Wang, H., Yang, D., Dasgupta, A., Carius, R. and Finger, F. (2009). Microcrystalline silicon carbide films grown by HWCVD at different filament temperatures and their application in n-i-p microcrystalline silicon solar cells. *Thin Solid Films.* **517**. 3513-3515.
- Conde, J.P., Chu, V., da Silva, V., Kling, A., Dai, Z., Soares, S., Arekat, A., Fedorov, M.N., Berberan-Santos, F., Giorgis, C.F., and Pirri. (1999). *J. Appl. Phys.* **85 (6)**. 3327-3338.
- Das, D., Chattopadhyay, S. and Barua, A.K. (1998). Improved quality a-SiC:H films deposited by a combination of heated filament and rf plasma deposition technique. *Solar Energy Materials and Solar Cells.* **51**. 1-8.
- Doyle, J., Robertson, R., Lin, G.H., He, M.Z. and Gallagher, A. (1988). Production of high quality a-Si films by evaporative silane surface decomposition. *J. Appl. Phys.* **64**. 3215-3223.
- Dua, A.K., George, V.C., Friedrich, M., Zahn, D.R.T. (2004). Effect of deposition parameters on different stages of diamond deposition in HFCVD technique. *Diamond and Related Materials* **13**. 74-84.

- Duan, H.L., Zaharias, G.A. and Bent, S.F., (2001). The effect of filament temperature on the gaseous radicals in the hot wire decomposition of silane. *Thin Solid Films*. **395**. 36-41.
- Ferreira, I., Aguas, H., Mendes, L. and Martins, R., (1999). Role of hot-wire filament temperature on the structure and morphology of the nanocrystalline silicon p-doped films. *Applied Surface Science*. **144-145**. 690-696.
- Ferreira, I., Cabrita, A., Fortunato, E. and Martins, R. (2002). Composition and structure of silicon carbide alloys obtained by hot wire plasma assisted techniques. *Vacuum*. **64**. 261-266.
- Ferreira, I., Fernandes, B. and Martins, R. (1999). Nanocrystalline silicon carbon doped films prepared by hot wire technique. *Vacuum*. **52**. 147-152.
- Fominskii, V.Y., Ramanov, R.I., Gnedovets, A.G., Zuev., V.V., Demin, M.V. and Grigoriev., V.V. (2011). Ion implantation of Platinum from pulsed laser plasma for fabrication of a hydrogen detector based on an n-6H-SiC crystal. *Semiconductors*. **45 (5)**. 685-692.
- Harris, G.L. (1995). "Lattice Parameters of SiC" in *Properties of Silicon Carbide*, INSPEC, p.4.
- Harris, S.J. and Weiner, A.M. (1990). Methyl radical and H-atom concentrations during diamond growth. *J. Appl. Phys.* **67 (10)**. 6520-6526.
- Harris, C.I., Savage, S., Konstantinov, A., Bakowski, M. And Ericsson, P. (2001). Progress towards SiC products. *Applied Surface Science*. **184**. 393-398.
- Hong, R., Huang, J, Chen, X., Zhou Yi., Liu, D. and Wu, Z. (2010). Ellipsometry, FTIR, Raman and X-Ray Spectroscopy analysis of PECVD a-Si_{1-x}C_x:H film. *Spectroscopy Letters*. **43**. 298-305.
- Itoh, T., (2002). Influence of different carbon source gases on preparation and properties of a-Si_{1-x}C_x:H alloy films including μ c-Si:H by hot-wire CVD. *J. Non-Crystalline Solid*. **299-302**. 880-884.
- Itoh, T., Katoh, Y., Fujiwara, T., Fukunaga, K., Nonomura, S. and Nitta, S. (2001). Preparation of silicon-carbon alloy films by HW-CVD and their properties *Thin Solid Films*. **395**. 240-243.
- Jacobs, J.A. and Thomas, F.K. (2005). *Engineering Materials Technology 5th Edition*, Pearson & Prentice Hall. p.118.
- Joshi, R., Engstler, J., Haridoss, P. and Schneider, J. (2009). Formation of carbon nanotubes from a silicon carbide/carbon composite. *Solid State Sciences* **11**. 422-427.

- Kaneko, T., Nemoto, D., Horiguchi, A. and Miyakawa, N. (2005). FTIR analysis of a-SiC:H films grown by plasma enhanced CVD. *J. Crystal Growth*. **275**. e1097-e1101.
- Keffous, A., Cheriet, A., Belkacem, Y., Gabouze, N., Boukezzata, A., Boukennous, Y., Brighet, A., Cherfi, R., Kechouane, M., Guerbous, L., Menous, I. and Menari, H. (2010). Structural and optical properties of a-Si_{1-x}C_x:H films synthesized by DC magnetron sputtering technique. *Applied Surface Science*. **256**. 4591-4595.
- King, S.W., Bielefeld, J., French, M. and Lanford, W.A. (2011). Mass and bond density measurements for PECVD a-Si_x:H thin films using Fourier transform-infrared spectroscopy. *J. Non-Crystalline Solids*. **357**. 3602-3615.
- King, S.W., French, M., Bielefeld, J. and Lanford, W.A. (2011). Fourier transform infrared spectroscopy investigation of chemical bonding in low-k a-SiC:H thin films. *J. Non-Crystalline Solids*. **357**. 2970-2983.
- Klein, S., Carius, R., Finger, F. and Houben, L. (2006). Low substrate temperature deposition of crystalline SiC using HW-CVD. *Thin Solid Films*. **501**. 169-172.
- Klein, S., Dasgupta, A., Finger, F., Carius, R. and Bronger, T. (2008). Electronic properties of low temperature microcrystalline silicon carbide prepared by hot wire CVD. *Thin solid films*. **516**. 630-632.
- Komura, Y., Tabata, A., Narita, T. and Kondo, A. (2008). Influence of gas pressure on low-temperature preparation and film properties of nanocrystalline 3C-SiC thin films by HW-CVD using SiH₄/CH₄/H₂ system. *Thin Solid Film*. **516**. 633-636.
- Kordina O., Irvine K., Sumakeries J., Kong H.S., Paisley M.J., Carter Jr. C.H. (1998). Silicon carbide, III-Nitrides and related materials. *Material Science Forum*. **264-268**. p.107.
- Kumbhar, A., Patil, S.B., Kumar, S., Lal, R. and Dusane R.O. (2001). Photoluminescent, wide-bandgap a-SiC:H alloy films deposited by Cat-CVD using acetylene. *Thin Solid Films*. **395**. 244-248.
- Lee, H-J., Jeon, H. and Lee, W-S. (2011). Ultrananocrystalline diamond film deposition by direct-current plasma assisted chemical vapour deposition using hydrogen-rich precursor gas in the absence of the positive column. *J. Applied Physics*. **109**. 023303.
- Lely, J.A. (1955). A simple method of producing extremely pure crystals of α-silicon carbide. *Ber. Dtsch. Keram. Ges.* **32**, 229.

- Leng, Y. (2008). *Materials Characterization: Introduction to Microscopic and Spectroscopic Methods*, John Wiley & Sons (Asia) Pte Ltd. p.64.
- Mahan, A.H. (2003). Hot wire CVD of Si containing materials for solar cells. *Solar Energy Materials and Solar Cells*. **78**. 299-327.
- Mandracci, P., Ferrero, S., Cicero, G., Giorgis, F., Pirri, C.F., Barucca, G., Reitano, R., Musumeci, P., Calcagno, L. and Foti, G. (2001). Growth and characterization of SiC layers obtained by microwave-CVD. *Thin Solid Films* **383**. 169-171.
- Manifacier, J.C., Gasiot J., Fillard, J.P. (1976). A simple method for the determination of the optical constants n, k, and the thickness of a weakly absorbing thin films. *J. Phys. E: Sci. Instruments*, Vol. **9**.
- Manifacier, J.C., Gasiot, J., Parot, P. and Fillard, J.P. (1978). A comment on thermally stimulated polarization currents. *J. Phys. C: Solid State Phys.* Vol. **11**.
- Matsuda, A. (1992). *Amorphous and Crystalline Silicon Carbide III*, Springer-Verlag: Berlin, p.45.
- Matsuda, A. (1997). Plenary and invited papers of the international conference on plasma physics. *Plasma Physics Control. Fusion*. **39 (5A)**. A431.
- Matsuda, A. (2004). Microcrystalline silicon: Growth and device application. *J. Non-Crystalline Solids*. **338-340**. 1-12.
- Matsumura, H. (1998). Formation of silicon-based thin films prepared by Cat-CVD method. *Jpn. J. Appl. Phys.* **37**. 3175-3187.
- Mori, M., Tabata, A. and Mizutani, T. (2006). Properties of a-SiC:H prepared at various hydrogen gas flow rates by hot-wire CVD. *Thin Solid Films*. **501**. 177-180.
- Nakamura, S. and Koshi, M. (2006). Elementary processes in silicon HW-CVD. *Thin Solid Films*. **501**. 26-30.
- Nayak, B.B., Behera, D. and Mishra, B.K. (2011). Nanorods of silicon carbide from silicon carbide powder by high temperature heat treatment. *J. Material Science*. **46**. 3052-3059.
- Ogawa, S., Okabe, M., Itoh, T., Yoshida, N. and Nonomura, S. (2008). Amorphous Si_{1-x}C_x:H films prepared by hot wire CVD using SiH₃CH₃ and SiH₄ mixture gas and its application to window layer for silicon thin film solar cell. *Thin Solid Films*. **516**. 758-760.

- Park, M., Teng, C.W., Sakhrani, V., Mc Laurin, Kolbas, R.M., Sanwald, R.C., Nemanich, Hren, I.J. and Cuomo, J.J. (2001). Optical characterization of wide band gap amorphous semiconductors (a-Si:C:H): Effect of hydrogen dilution. *J. Applied Physics*. **89** (2). 1130.
- Paul, S. and Clough, F.J. (1998). Schottky barrier formation on r.f.-plasma enhanced chemical vapour deposited hydrogenated amorphous carbon. *Diamond and Related Materials*. **7** (11-12). 1734-1738.
- Pereyra, I. and Carreno, M.N.P. (1996). Wide gap a-Si_{1-x}C_x:H thin films obtained under starving plasma deposition conditions. *J. Non-Crystalline Solid*. **201**. 110-118.
- Rajagopalan, T., Wang, X., Lahlouh, B., Ramkumar, C., Dutta, P. and Gangopadhyay, S. (2003). Low temperature deposition of nanocrystalline SiC films by PECVD and their structural and optical characterization. *J. Applied Physics*. **94** (8). 5252-5260.
- Ricciardi, C., Primiceli, A., Germani, G., Rusconi, A. and Giorgis, F. (2006). Microstructure analysis of a-SiC:H thin films grown by high-growth rate PECVD. *J. Non-Crystalline Solids*. **352**. 1380-1383.
- Rozhin, A.G., Klyui, N.I., Litovchenko, V.G. and Piryatinskii, Y.P. (2002). Light emission of the SiC nanoclusters embedded into porous silicon. *Materials Science and Engineering C*. **19**. 229-231.
- Ruff, M., Mitlehner, H. and Helbig, R. (1994). SiC Devices: Physics and Numerical Simulation. *IEEE Transactions on Electron Devices* **41** (6). 1040-1054.
- Sachdev, H. and Scheid, P. (2001). Formation of silicon carbide and silicon carbonitride by RF-plasma CVD. *Diamond and Related Materials*. **10**. 1160-1164.
- Soum-Glaude, A., Thomas, L., Tomasella, E., Badie, J.M. and Berjoan, R. (2005). Selective effect of ion/surface interaction in low frequency PACVD of SiC:H films: Part A. Gas phase considerations. *Surface and Coatings Tech.* **200**. 855-858.
- Schroeder, B., Weber, U., Seitz, H., Ledermann, A. and Mukherjee, C. (2001). Current status of the thermo-catalytic (hot-wire) CVD of thin silicon films for photovoltaic applications. *Thin Solid Films*. **395**. 298-304.
- Shi, J.R., Shi, X., Sun, Z., Liu, E., Yang, H.S., Cheah, L.K. and Jin X.Z. (1999). Structural properties of amorphous silicon-carbon films deposited by the filtered cathodic vacuum arc technique. *J. Phys.: Condensed Matter*. **11** (26). 5111.

- Smith, W.F. and Hashemi, J. (2006). *Foundations of Materials Science and Engineering, 4th Ed.* McGraw-Hill. p.58.
- Song, C., Rui, Y., Wang, Q., Xu, J., Li, W., Chen, K., Zuo, Y. and Wang., Q. (2011). Structural and electronic properties of Si nanocrystals embedded in amorphous SiC matrix. *J. Alloys and Compounds*. **509**. 3963-3966.
- Sugita, K., Itoh, M., Masuda, A. and Matsumura, H. (2003). Fabrication of a-Si_{1-x}C_x:H thin films for solar cells by the Cat-CVD method using a carbon catalyzer. *Thin Solid Films*. **430**. 170-173.
- Swain, B.P. (2006). Influence of process pressure on HW-CVD deposited a-SiC:H films. *Surface and Coatings Technology* **201**. 1132-1137.
- Swain, B.P. and Dusane, R.O. (2006). Multiphase structure of hydrogen diluted a-SiC:H deposited by HWCVD. *Materials Chemistry and Physics*. **99**. 240-246.
- Swain, B.P., Gundu Rao T.K., Roy, M., Gupta, J. and Dusane, R.O. (2006). Effects of H₂ dilution on Cat-CVD a-SiC:H films. *Thin solid Films* **501**. 173-176.
- Syvajarvi, M., Yakimova, R., Jacobsson, H., Linnarsson, M.K., Henry, A. and Janzen, E. (2000). *Material Science Forum*. **165**. 338-342.
- Tabata, A., Kuroda M., Mori M., Mizutani T. and Suzuoki Y. (2004). Band gap control of hydrogenated amorphous SiC films prepared by hot-wire chemical vapor deposition. *J. Non-Crystalline Solids*. **338-340**. 521-524.
- Tabata, A. and Komura, Y. (2007). Preparation of nanocrystalline cubic silicon carbide thin films by hot-wire CVD at various filament-to-substrate distances. *Surface and Coatings Technology*. **201**. 8986-8990.
- Tabata, A. and Mori, M. (2008). Structural changes of hot-wire CVD silicon carbide thin films induced by gas flow rates. *Thin Solid Films*. **516**. 626-629.
- Tabata, A., Komura, Y., Narita, T. and Kondo, A. (2009). Growth of silicon carbide thin films by hot-wire chemical vapour deposition from SiH₄/CH₄/H₂. *Thin Solid Films*. **517**. 3516-3519.
- Tung, F.K., Perevedentseva E., Chou P.W. and Cheng C.L. (2005). Structural and spectroscopic analysis of hot filament decomposed ethylene deposited at low temperature on silicon surface. *Applied Surface Science*. **252**. 1167-1174.
- Wang. B., Liu, W., Wang, G.J., Liao, B., Wang, J.J., Zhu, M.K., Wang, H. and Yan, H. (2003). Effects of substrate bias on β -SiC films prepared by PECVD. *Materials Science and Engineering*. **B98**. 190-192.

- Wang, L., Xu, J., Ma, T., Li, W., Huang, X. and Chen, K. (1999). The influence of the growth conditions on the structural and optical properties of hydrogenated a-SiC thin films. *J. Alloys and Compounds*. **290**. 273-278.
- Wang, M., Huang, A.P., Chu, P.K., Wang, B. and Yan, H. (2007). Effects of plasma hydrogenation on low temperature growth of nanocrystalline cubic SiC thin films. *Diamond and Related Materials*. **16**. 826-830.
- Wang, Y., Yue, R. and Liu, L. (2002). Structural properties of hydrogenated amorphous silicon carbide alloys. *Appl. Surface Science*. **193**. 138-143.
- Wang, X.H., Eguchi, K., Iwamoto, C. and Yoshida, T. (2002). High-rate deposition of nanostructured SiC films by thermal plasma PVD. *Science and Technology of Advanced Materials*. **3**. 313-317.
- Wei, J., Li, K., Chen, J. and Yuan, H. (2011). Synthesis of centimeter-scale ultra-long SiC nanowires by simple catalyst-free chemical vapour deposition. *J. Crystal Growth*. **335**. 160-164.
- Wieligor, M., Wang, Y. and Zerda, T.W. (2005). Raman spectra of silicon carbide small particles and nanowires. *J. Phys.: Condensed Matter*. **17**. 2387-2395.
- Wolden, C., Mitra, S. and Gleason, K.K. (1992). Radiative heat transfer in hot filament CVD diamond reactors. *J. Appl. Phys.* **72 (8)**. 3750-3757.
- Xu, J., Mei, J., Chen, D., Chen, S., Li, W. and Chen, K. (2005). All amorphous SiC based luminescent microcavity. *Diamond and related Materials*. **14**. 1999-2002.
- Xu, J., Yang, L., Rui, Y., Mei, J., Zhang, X., Li, W., Ma, Z., Xu, L., Huang, X. and Chen, K. (2005). Photoluminescence characteristics from a-SiC thin films with various structures deposited at low temperature. *Solid State Communications*. **133**. 565-568.
- Xu, Y., Liao, X., Kong, G., Zeng, X., Hu, Z., Diao, H. and Zhang, S. (2003). Microstructure characterization of transition films from amorphous to nanocrystalline silicon. *J. Crystal Growth*. **256**. 27-32.
- Yakimova, R., Syvajarvi, M., Iakimov, T., Jacobsson, H., Kakanakova-Georgieva, A., Raback, P. and Janzen, E. (2001). Growth of silicon carbide: process-related defects. *Applied Surface Science*. **184**. 27-36.
- Ying, Y., Gu, Y., Li, Z., Gu, H., Cheng, L. and Qian, Y. (2004). A simple route to nanocrystalline silicon carbide. *J. Solid State Chemistry*. **177**. 4163-4166.
- Yu, M.B., Rusli and Yoon, S.F. (2000). Deposition of nanocrystalline cubic SiC films using the hot-filament CVD method. *J. Appl. Phys.* **87 (11)**. 8155-8157.

- Yu, M.B., Rusli and Yoon, S.F., Xu S.J., Chew K., Cui J., Ahn J. and Zhang Q. (2000). Hydrogenated nanocrystalline SiC films synthesized by ECR-CVD and its intense visible photoluminescence at room temperature. *Thin Solid Films*. **377-378**. 177-181.
- Yu, W., Lu, W., Han, L. and Fu, G. (2004). Structural and optical properties of a-SiC:H films by helicon wave PECVD deposition. *J. Phys. D: Appl. Phys.* **37**. 3304-3308.
- Zanella, C., Lekka, M. and Bonora, P.L. (2009). Influence of the particle size on the mechanical and electrochemical behaviour of micro and nano-nickel matrix composite coatings. *J. Appl. Electrochem.* **39**. 31-38.
- Zeigler, G., Lanig, P., Theis, D., and Weyrich, C. (1983). Single crystal growth of SiC substrate material for blue light emitting diodes. *IEEE Trans. Electron Devices*. **30 (4)**. 277-281.
- Zhang, Y., Du, P., Zhang, R., Han, G. and Weng, W. (2008). Structure and properties of hydrogenated amorphous silicon carbide thin films deposited by PECVD. *J. Non-Crystalline Solids*. **345**. 1435-1439.