REFERENCES

REFERENCES

Achard, J., et al. (2007), 'Coupled effect of nitrogen addition and surface temperature on the morphology and the kinetics of thick CVD diamond single crystals', *Diamond & Related Materials,* 16, 685-89.

Adhikari, Sudip, et al. (2008), 'Optical band gap of nitrogenated amorphous carbon thin films synthesized by microwave surface wave plasma CVD', *Diamond and Related Materials,* 17 (7-10), 1666-68.

Adhikari, Sudip, et al. (2006), 'Optoelectronic properties of nitrogenated amorphous carbon films synthesized by microwave surface wave plasma chemical vapor deposition system', *Diamond and Related Materials,* 15, 1894-97.

Ahmed, Sk F., et al. (2007), 'Effect of temperature on the electron field emission from aligned carbon nanofibers and multiwalled carbon nanotubes', *Applied Surface Science,* 254 (2), 610-15.

Aisenberg, S and Chabot, R (1970), 'Ion beam deposition of thin films of insulating carbon.', *Presented at the 1970 Goverment Microcitcuit applications conference (GOMAC),,* New Jersey.

Aisenberg, S and Chabot, R (1971), 'Ion-Beam Deposition of Thin Films of Diamondlike Carbon', *Journal of Applied Physics,* 42 (7), 2953-58.

Ajayan, P.M., et al. (1994), 'Growth of Mangenese filled carbon nanofibers in the vapor phase ', *Physical Review Letters,* 72 (11), 1722-25.

Alibart, F., et al. 'The effect of the terminating bonds on the electronic properties of sputtered carbon nitride thin films', *Thin Solid Films,* In Press, Corrected Proof.

Alibart, F., et al. (2008a), 'Relationship between the structure and the optical and electrical properties of reactively sputtered carbon nitride films', *Solid State Communications,* 145 (7-8), 392-96.

Alibart, F., et al. (2011), 'Effect of nitrogen on the optoelectronic properties of a highly sp2-rich amorphous carbon nitride films', *Diamond and Related Materials,* 20 (3), 409-12.

Alibart, F., et al. (2008b), 'Evolution of the opto-electronic properties of amorphous carbon films as a function of nitrogen incorporation', *Diamond and Related Materials,* 17 (6), 925-30.

Amir, O. and Kalish, R. (1991), 'Properties of nitrogen-doped amorphous hydrogenated carbon films', *Journal of Applied Physics,* 70 (9), 4958-62.

Andújar, J. L., et al. (2001), 'Carbon nitride thin-films deposited from coupled r.f.-magnetron sputtering and ion beam-assisted processes', *Diamond and Related Materials,* 10 (3-7), 1175-78.

Aono, Masami and Nitta, Shoji (2002), 'High resistivity and low dielectric constant amorphous carbon nitride films: application to low-k materials for ULSI', *Diamond and Related Materials,* 11 (3-6), 1219-22.

Aono, Masami, et al. (2008), 'XPS study of carbon nitride films deposited by hot filament chemical vapor deposition using carbon filament', *Thin Solid Films,* 516 (5), 648-51.

Ayala, P., et al. (2010), 'The doping of carbon nanotubes with nitrogen and their potential applications', *Carbon,* 48 (3), 575-86.

Aïssa, B., Therriault, D., and El Khakani, M.A. (2011), 'On-substrate growth of single-walled carbon nanotube networks by an ‘‘all-laser’’ processing route', *Carbon,* 49, 2795-808.

Bai, X. D., et al. (2001), 'Hydrogen storage in carbon nitride nanobells', *Applied Physics Letters,* 79 (10), 1552-54.

Banerjee, D., Mukherjee, S., and Chattopadhyay, K. K. (2011), 'Synthesis of amorphous carbon nanowalls by DC-PECVD on different substrates and study of its field emission properties', *Applied Surface Science,* 257 (8), 3717-22.

Banerjee, I., et al. (2010), 'Influence of RF power on the electrical and mechanical properties of nano-structured carbon nitride thin films deposited by RF magnetron sputtering', *Thin Solid Films,* 518 (24), 7240-44.

Biederman, H. (1981), 'Deposition of polymer films in low pressure reactive plasmas', *Thin Solid Films,* 86 (2-3), 125-36.

Binh, Vu Thien, Garcia, N., and Purcell, S. T. (1996), 'Electron Field Emission from Atom-Sources: Fabrication, Properties, and Applications of Nanotips', in W. Hawkes Peter (ed.), *Advances in Imaging and Electron Physics* (Volume 95: Elsevier), 63-82, 82a, 82b, 83-153.

Bouchet-Fabre, B., et al. (2008), 'Influence on the sp^3/sp^2 character of the carbon on the insertion of nitrogen in RFMS carbon nitride films', *Diamond and Related Materials,* 17 (4-5), 700-04.

Bourée, J. E., et al. (1998), 'Photoluminescence of polymer-like amorphous carbon films grown in different plasma reactors', *Journal of Non-Crystalline Solids,* 227-230 (Part 1), 574-78.

Bouzerar, R., Zeinert, A., and von Bardeleben, H. J. (2005), 'Correlation of optical absorption and density of paramagnetic centers in a-C:H films', *Diamond and Related Materials,* 14 (3-7), 1108-11.

Bower, Chris, et al. (2000), 'Plasma-induced alignment of carbon nanotubes', *Applied Physics Letters,* 77 (6), 830-32.

Brown, Billyde, et al. (2011), 'Growth of vertically aligned bamboo-like carbon nanotubes from ammonia/methane precursors using a platinum catalyst', *Carbon,* 49 (1), 266-74.

Brownson, Dale A. C., Kampouris, Dimitrios K., and Banks, Craig E. (2011), 'An overview of graphene in energy production and storage applications', *Journal of Power Sources,* 196 (11), 4873-85.

Butler, J E and et al. (2009), 'Understanding the chemical vapor deposition of diamond: recent progress', *Journal of Physics: Condensed Matter,* 21 (36), 364201.

Camero, M., et al. (2003), 'Hydrogen incorporation in CN_x films deposited by ECR chemical vapor deposition', *Diamond and Related Materials,* 12, 632-35.

Cameron, D. C. (2003), 'Optical and electronic properties of carbon nitride', *Surface and Coatings Technology,* 169-170, 245-50.

Cappelli, E., et al. 'Effect of deposition temperature on chemical composition and electronic properties of amorphous carbon nitride (a-CNx) thin films grown by plasma assisted pulsed laser deposition', *Thin Solid Films,* In Press, Corrected Proof.

Cappelli, E., et al. (2011a), 'Effect of deposition temperature on chemical composition and electronic properties of amorphous carbon nitride (a-CNx) thin films grown by plasma assisted pulsed laser deposition', *Thin Solid Films,* 519 (12), 4059-63.

Cappelli, E., et al. (2011b), 'Carbon nitride films by RF plasma assisted PLD: Spectroscopic and electronic analysis', *Applied Surface Science,* 257, 5175–80.

Chan, W. C., et al. (1999), 'Nitrogenated amorphous carbon films synthesized by electron cyclotron resonance plasma enhanced chemical vapor deposition', *Diamond and Related Materials,* 8 (8-9), 1732-36.

Chang, C. S., et al. (2003), 'Band-gap dependence of field emission from one-dimensional nanostructures grown on n-type and p-type silicon substrates', *PHYSICAL REVIEW B,* 68, 125322-(1)-(5).

Chen, Guohua, et al. (2003a), 'Exfoliation of graphite flake and its nanocomposites', *Carbon,* 41 (3), 619-21.

Chen, Guohua, et al. (2003b), 'Exfoliation of graphite flake and its nanocomposites', *Carbon,* 41, 579 -625.

Chen, Ming Y., et al. (1993), 'Analytical electron microscopy and Raman spectroscopy studies of carbon nitride thin films', *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films,* 11 (3), 521-24.

Chen, Yan, et al. (1997), 'Well-aligned graphitic nanofibers synthesized by plasma-assisted chemical vapor deposition', *Chemical Physics Letters,* 272 (3-4), 178-82.

Cheng, Y. H., et al. (2001a), 'Influence of nitrogen ion energy on the Raman spectroscopy of carbon nitride films', *Diamond and Related Materials,* 10 (12), 2137-44.

Cheng, Y.H., et al. (2001b), 'Raman spectroscopy of carbon nitride films deposited using the filtered cathodic vacuum-arc technique combined with a radio-frequency nitrogen-ion beam', *Applied Physics A,* 73, 341–45.

Chih, Y. K., et al. (2006), 'Nano-scale diamond tips: Synthesis in the $CH_4/N_2/H_2$ plasma', *Diamond and Related Materials,* 15 (9), 1246-49.

Chu, Paul K. and Li, Liuhe (2006), 'Characterization of amorphous and nanocrystalline carbon films', *Materials Chemistry and Physics,* 96 (2-3), 253-77.

Chu, R.S. and Shiue, S.T. (2009), 'Effects of different nitrogen/methane ratios on the residual stress of a-C:N thin films prepared by plasma enhanced chemical vapor deposition', *Thin Solid Films,* 517, 4879–82.

Chu, Rong-Shian and Shiue, Sham-Tsong (2008), 'Effects of radio frequency powers on the characteristics of a-C:N/p-Si photovoltaic solar cells prepared by plasma enhanced chemical vapor deposition', *Surface and Coatings Technology,* 202, 5364-66.

Chuang, Alfred T.H., Boskovic, Bojan O., and Robertson, John (2006), 'Freestanding carbon nanowalls by microwave plasma-enhanced chemical vapour deposition', *Diamond & Related Materials,* 15, 1103 - 06.

Comisso, N., et al. (2010), 'Changes in hydrogen storage properties of carbon nano-horns submitted to thermal oxidation', *International Journal of Hydrogen Energy,* 35 (17), 9070-81.

Conway, N. M. J., et al. (2000), 'Defect and disorder reduction by annealing in hydrogenated tetrahedral amorphous carbon', *Diamond and Related Materials,* 9 (3-6), 765-70.

Craciun, M. F., et al. (2011), 'Tuneable electronic properties in graphene', *Nano Today,* 6 (1), 42-60.

Cuomo, J. J., et al. (1979), 'Reactive sputtering of carbon and carbide targets in nitrogen', *Journal of Vacuum Science and Technology,* 16 (2), 299-302.

Daigo, Yoshiaki and Mutsukura, Nobuki (2004), 'Structures and luminescence properties of polymer-like a-CN_x:H films', *Diamond and Related Materials,* 13 (11-12), 2170-73.

Dang, C. and Wang, B. B. (2006), 'Effects of etchant gas on the formation of carbon nanotip arrays grown by plasma-enhanced hot filament chemical vapor deposition', *Thin Solid Films,* 514 (1-2), 76-80.

Davis, E A and et al. (1987), 'Optical properties of amorphous SiN x (:H) films', *Journal of Physics C: Solid State Physics,* 20 (27), 4415.

Denton, R E and et al. (1972), 'The determination of the optical constants of thin films from measurements of reflectance and transmittance at normal incidence', *Journal of Physics D: Applied Physics,* 5 (4), 852.

Denysenko, I and Azarenkov, N A (2011), 'Formation of vertically aligned carbon nanostructures in plasmas: numerical modelling of growth and energy exchange', *Journal of Physics D: Applied Physics,* 44 (17), 174031.

Dikonimos, Th, et al. (2007), 'DC plasma enhanced growth of oriented carbon nanowall films by HFCVD', *Diamond and Related Materials,* 16 (4-7), 1240-43.

Dillon, R. O., Woollam, John A., and Katkanant, V. (1984), 'Use of Raman scattering to investigate disorder and crystallite formation in as-deposited and annealed carbon films', *Physical Review B,* 29 (6), 3482.

Ding, Jun, et al. (2008), 'Effect of deposition pressure on the adhesion and tribological properties of a-CNxH films prepared by DC-RF-PECVD', *Journal of Material Science,* 43, 645-51.

Dong, Z. B., et al. (2008), 'Thermal stability of carbon nitride thin films prepared by electron cyclotron resonance plasma assisted pulsed laser deposition', *Thin Solid Films,* 516 (23), 8594-98.

Dorner-Reisel, A., et al. (2005), 'Characterisation of nitrogen modified diamond-like carbon films deposited by radio-frequency plasma enhanced chemical vapour deposition', *Diamond and Related Materials,* 14 (3-7), 1073-77.

Du, Jinhong, et al. (2011), 'Comparison of electrical properties between multi-walled carbon nanotube and graphene nanosheet/high density polyethylene composites with a segregated network structure', *Carbon,* 49 (4), 1094-100.

Du, X. W., et al. (2007), 'Intensive light emission from SiCN films by reactive RF magnetron sputtering', *Materials Chemistry and Physics,* 103 (2-3), 456-60.

Durand-Drouhin, O., et al. (2001), 'Comparative study of microstructure in a-CxN1-x films deposited by radiofrequency magnetron sputtering', *Diamond and Related Materials,* 10 (3-7), 1156-59.

Falkovsky, L A (2008a), 'Optical properties of graphene and IV–VI semiconductors', *Physics-Uspekhi,* 51 (9), 887.

Falkovsky, L A (2008b), 'Optical properties of graphene', *Journal of Physics: Conference Series,* 129 (1), 012004.

Fanchini, G. and et al. (2002), 'Density and capture radius of 'defects': quenching of the luminescent states in non-nitrogenated and nitrogenated amorphous carbon thin films', *Journal of Physics: Condensed Matter,* 14 (48), 13231.

Fanchini, G., Ray, S. C., and Tagliaferro, A. (2003), 'Photoluminescence investigation of carbon nitride-based films deposited by reactive sputtering', *Diamond and Related Materials,* 12 (3-7), 1084-87.

Fanchini, G., et al. 'Paramagnetic centres and microstructure of reactively sputtered amorphous carbon nitride thin films', *Diamond and Related Materials,* 11 (3-6), 1143-48.

Fanchini, G., et al. (2002a), 'Role of lone-pair interactions and local disorder in determining the interdependency of optical constants of a-CN:H thin films', *Physical Review B,* 66 (19), 195415.

Fanchini, G., et al. (2002b), 'Paramagnetic centres and microstructure of reactively sputtered amorphous carbon nitride thin films', *Diamond and Related Materials,* 11 (3-6), 1143-48.

Fanchini, G., et al. (2005), 'Growth and characterisation of polymeric amorphous carbon and carbon nitride films from propane', *Diamond and Related Materials,* 14 (3-7), 928-33.

Fang, Wei-Chuan, et al. (2007), 'Influence of catalyst oxidation on the growth of nitrogen-containing carbon nanotubes for energy generation and storage applications', *Diamond and Related Materials,* 16 (4-7), 1140-43.

Feng, Lingyan, et al. (2011), 'A graphene functionalized electrochemical aptasensor for selective label-free detection of cancer cells', *Biomaterials,* 32 (11), 2930-37.

Ferrari, A. C. and Robertson, J. (2000), 'Interpretation of Raman spectra of disordered and amorphous carbon', *Physical Review B,* 61 (20), 14095.

Ferrari, A. C. and Robertson, J. (2001), 'Resonant Raman spectroscopy of disordered, amorphous, and diamondlike carbon', *Physical Review B,* 64 (7), 075414.

Ferrari, A. C., Rodil, S. E., and Robertson, J. (2003a), 'Resonant Raman spectra of amorphous carbon nitrides: the G peak dispersion', *Diamond and Related Materials,* 12 (3-7), 905-10.

Ferrari, A. C., Rodil, S. E., and Robertson, J. (2003b), 'Interpretation of infrared and Raman spectra of amorphous carbon nitrides', *Physical Review B,* 67 (15), 155306.

Fitzgerald, A. G., et al. (2001), 'Microstructural properties of amorphous carbon nitride films synthesised by dc magnetron sputtering', *Applied Surface Science,* 175-176, 525-30.

Freire, F. L., et al. (1995), 'Amorphous hydrogenated carbon nitride films obtained by plasma-enhanced chemical vapour deposition', *Surface and Coatings Technology,* 74-75 (Part 1), 382-86.

Gago, R., et al. (2005), 'Synthesis of carbon nitride thin films by low-energy ion beam assisted evaporation: on the mechanisms for fullerene-like microstructure formation', *Thin Solid Films,* 483 (1-2), 89-94.

García-Céspedes, J, et al. (2007), 'Carbon nanotubes grown by asymmetric bipolar pulsed-DC PECVD', *Diamond & Related Materials,* 16, 1131–35.

Ge, Maohui and Sattler, Klaus (1994), 'Observation of fullerene cones', *Chemical Physics Letters,* 220 (3-5), 192-96.

Geng, Dongsheng, et al. (2011), 'High oxygen-reduction activity and durability of nitrogen-doped graphene', *Energy & Environmental Science,* 4 (3), 760-64.

Gharbi, R., et al. (2008), 'Hydrogen and nitrogen effects on optical and structural properties of amorphous carbon', *Materials Science and Engineering C,* 28, 795–98.

Ghimire, D.C., et al. (2008), 'Effects of ethylene gas flow rate on optoelectrical properties of nitrogenated thin amorphous carbon films grown by microwave surface wave plasma CVD', *Diamond & Related Materials,* 17, 1724–27.

Ghimire, Dilip Chandra, et al. (2006), 'The role of pressure on thin amorphous carbon films deposited using microwave surface wave plasma CVD', *Diamond and Related Materials,* 15, 1792-94.

Ghodselahi, T. and Vesaghi, M. A. (2008), 'Polymeric like carbon films prepared from liquid gas and the effect of nitrogen', *Applied Surface Science,* 254 (20), 6441-45.

Ghosh, Kaushik, et al. (2010), 'Tailoring the field emission property of nitrogen-doped carbon nanotubes by controlling the graphitic/pyridinic substitution', *Carbon,* 48 (1), 191-200.

Ghosh, Pradip and et al. (2008), 'Bamboo-shaped aligned CN x nanotubes synthesized using single feedstock at different temperatures and study of their field electron emission', *Journal of Physics D: Applied Physics,* 41 (15), 155405.

Godet, C. and Berberan-Santos, M. N. (2001), 'Evidence for excitonic behavior of photoluminescence in polymer-like a-C:H films', *Diamond and Related Materials,* 10 (2), 168-73.

Godet, C., et al. (2005), 'Optical and electronic properties of plasma-deposited hydrogenated amorphous carbon nitride and carbon oxide films', *Thin Solid Films,* 482 (1-2), 24-33.

Gottardi, G., et al. (2008), 'Plasma enhanced chemical vapor deposition of a-C:H films in CH_4-CO_2 plasma: Gas composition and substrate biasing effects on the film structure and growth process', *Thin Solid Films,* 516 (12), 3910-18.

Gotzias, A., et al. (2011), 'A grand canonical Monte Carlo study of hydrogen adsorption in carbon nanohorns and nanocones at 77 K', *Carbon,* 49 (8), 2715-24.

Hao, Junying, Xu, Tao, and Liu, Weimin (2005), 'Effect of deposition pressure on microstructure and properties of hydrogenated carbon nitride films prepared by DC-RF-PECVD', *Journal of Non-Crystalline Solids,* 351 (49-51), 3671-76.

Hao, Junying, Liu, Weimin, and Xue, Qunji (2007), 'Effect of N_2/CH_4 flow ratio on microstructure and composition of hydrogenated carbon nitride films prepared by a dual DC-RF plasma system', *Journal of Non-Crystalline Solids,* 353 (2), 136-42.

He, J. L. and Chang, W. L. (1998), 'Preparation and characterization of RF-PECVD deposited films containing [beta]-C3NN4 microcrystallites', *Surface and Coatings Technology,* 99 (1-2), 184-90.

Hiraki, Akio, et al. (1984), 'Tetrahedral carbon film by hydrogen gas reactive rf-sputtering of graphite onto low temperature substrate', *Solid State Communications,* 50 (8), 713-16.

Hiramatsu, M., et al. (2003), 'Fabrication of vertically aligned carbon nanostructures by microwave plasma-enhanced chemical vapor deposition', *Diamond and Related Materials,* 12, 786-89.

Hojati-Talemi, Pejman and Simon, George P. (2011), 'Field emission study of graphene nanowalls prepared by microwave-plasma method', *Carbon,* 49 (8), 2875-77.

Honglertkongsakul, K., May, P.W., and Paosawatyanyong, B. (2010), 'Electrical and optical properties of diamond-like carbon films deposited by pulsed laser ablation', *Diamond & Related Materials,* 19, 999–1002.

Huang, Bing, et al. (2007a), 'Making a field effect transistor on a single graphene nanoribbon by selective doping', *Applied Physics Letters,* 91 (25), 253122.

Huang, H., Wang, X., and He, J. (2003), 'Synthesis and properties of graphite-like carbon by ion beam-assisted deposition', *Materials Letters,* 57 (22-23), 3431-36.

Huang, Z. H., et al. (2007b), 'Effect of annealing on the composition, structure and mechanical properties of carbon nitride films deposited by middle-frequency magnetron sputtering', *Materials Letters,* 61 (16), 3443-45.

Iijima, Sumio (1991), 'Helical microtubules of graphitic carbon', *Nature,* 354 (6348), 56-58.

Ikenaga, Noriaki, et al. 'Relation of the polymeric ion species in plasma to the hardness of a-C:H film made by PSII&D', *Surface and Coatings Technology,* In Press, Accepted Manuscript.

Imran Jafri, R., Rajalakshmi, N., and Ramaprabhu, S. (2010), 'Nitrogen doped graphene nanoplatelets as catalyst support for oxygen reduction reaction in proton exchange membrane fuel cell', *Journal of Materials Chemistry,* 20 (34), 7114-17.

Ito, H, Kanda, K, and Saitoh, H (2008), 'Deposition of mechanically hard amorphous carbon nitride films with high [N] / ([N]+[C]) ratio', *Diamond & Related Materials,* 17, 688-91.

Ito, H. (2008), 'Production and deposition of CN radicals to produce amorphous carbon nitride films with high [N]/([N]+[C]) ratio', *Diamond & Related Materials,* 17 692-95.

Itoh, T. and Mutsukura, N. (2004), 'Mechanical properties of a-C:H thin films deposited by r.f. PECVD method', *Vacuum,* 77 (1), 11-18.

Itoh, Takashi 'Synthesis of carbon nanowalls by hot-wire chemical vapor deposition', *Thin Solid Films,* In Press, Corrected Proof.

Jeong, Hee Jin, et al. (2002), 'Dual-catalyst growth of vertically aligned carbon nanotubes at low temperature in thermal chemical vapor deposition', *Chemical Physics Letters,* 361, 189-95.

Jiang, J., et al. (2006), 'Field emission properties and synthesis of carbon nanotubes grown by rf plasma-enhanced chemical vapor deposition', *Applied Surface Science,* 252, 2938–43.

Kaltofen, R., Sebald, T., and Weise, G. (1997), 'Low-energy ion bombardment effects in reactive rf magnetron sputtering of carbon nitride films', *Thin Solid Films,* 308-309, 118-25.

Kaufman, J. H., Metin, S., and Saperstein, D. D. (1989), 'Symmetry breaking in nitrogen-doped amorphous carbon: Infrared observation of the Raman-active G and D bands', *Physical Review B,* 39 (18), 13053.

Kern, W. (1993), 'Handbook of Semiconductor Wafer Cleaning Technology - Science, Technology, and Applications', (William Andrew Publishing/Noyes).

Khan, R. U. A., et al. (1999), 'A study of the effects of nitrogen incorporation and annealing on the properties of hydrogenated amorphous carbon films', *Carbon,* 37 (5), 777-80.

Kim, B. K. and Grotjohn, T. A. (2000a), 'Hydrogenated amorphous carbon films deposited in an electron cyclotron resonance-chemical vapor deposition discharge reactor using acetylene', *Diamond and Related Materials,* 9 (3-6), 654-57.

Kim, B. K. and Grotjohn, T. A. (2000b), 'Comparison of a-C:H films deposited from methane-argon and acetylene-argon mixtures by electron cyclotron resonance-chemical vapor deposition discharges', *Diamond and Related Materials,* 9 (1), 37-47.

Kim, Do Hyeong, et al. 'Electro-conducting polymeric films prepared from the hybrids of carbon nanotubes and graphene nanosheets', *Current Applied Physics,* In Press, Corrected Proof.

Kim, Gyubong, Jhi, Seung-Hoon, and Park, Noejung (2008), 'Effective metal dispersion in pyridinelike nitrogen doped graphenes for hydrogen storage', *Applied Physics Letters,* 92 (1), 013106.

Kim, Ki-Hwan, et al. 'Laterally organized Carbon Nanotube arrays based on Hot-Filament Chemical Vapor Deposition', *Thin Solid Films,* In Press, Accepted Manuscript.

Kim, S. B. and Wager, J. F. (1988), 'Electroluminescence in diamond-like carbon films', *Applied Physics Letters,* 53 (19), 1880-81.

Kim, Sang Hoon, et al. (2010), 'Optical, mechanical and etch properties of amorphous carbon nitride films grown by plasma enhanced chemical vapor deposition at room temperature', *Synthetic Metals,* 160 (23-24), 2442-46.

Kimura, Chiharu, et al. 'Improved field emission characteristics of carbon nanofiber treated with nitrogen plasma', *Diamond and Related Materials,* 16 (4-7), 1383-87.

Kinoshita, Haruhisa, Kubota, Masaya, and Ohno, Genji (2010), 'Deposition of amorphous carbon nitride films using Ar/N2 supermagnetron sputter', *Thin Solid Films,* 518 (13), 3502-05.

Kipling, J. J., et al. (1964a), 'Factors influencing the graphitization of polymer carbons', *Carbon,* 1 (3), 315-18, IN19-IN20, 19-20.

Kipling, J. J., et al. (1964b), 'The pore structure and surface area of high-temperature polymer carbons', *Carbon,* 1 (3), 321-28.

Knight, Diane S. and White, William B. (1989), 'Characterization of diamond films by Raman spectroscopy', *Journal of Materials Research,* 4 (2), 385-93.

Kola, P. V., et al. (1995), 'Magnetron-sputtered carbon nitride (CNx) films', *Surface and Coatings Technology,* 74-75 (Part 2), 696-703.

Kouakou, Paul, et al. (2008), 'Role of silicon on the growth mechanisms of CN_x and SiCN thin films by N_2/CH_4 microwave plasma assisted chemical vapour deposition', *Surface and Coatings Technology,* 203, 277-83.

Kovács, Gy.J., et al. (2008), 'Raman spectroscopic study of magnetron sputtered carbon–nickel and carbon nitride–nickel composite films: The effect of nickel on the atomic structure of the C/CNx matrix', *Thin Solid Films* 516 7910-15.

Kroto, H. W., et al. (1985), 'C60: Buckminsterfullerene', *Nature,* 318 (6042), 162-63.

Kulisch, W., et al. (2000), 'Investigation of the thermal stability of nitrogen-rich amorphous carbon nitride films', *Thin Solid Films,* 377-378, 148-55.

Kumar, Sushil, et al. (2010), 'Properties of nitrogen diluted hydrogenated amorphous carbon (n-type a-C:H) films and their realization in n-type a-C:H/p-type crystalline silicon heterojunction diodes', *Vacuum,* 84 (7), 882-89.

Kundoo, S., et al. (2003), 'Synthesis and optical characterization of amorphous carbon nitride thin films by hot filament assisted RF plasma CVD', *Vacuum,* 69 (4), 495-500.

Kurt, R., Bonard, J. M., and Karimi, A. (2001), 'Morphology and field emission properties of nano-structured nitrogenated carbon films produced by plasma enhanced hot filament CVD', *Carbon,* 39 (11), 1723-30.

Lacerda, M.M., Jr., F.L. Freire, and Mariotto, G. (1998), 'Raman spectroscopy of annealed carbon nitride films deposited by RF-magnetron sputtering', *Diamond and Related Materials,* 7, 412-16.

Lahiri, Indranil, Verma, Ved Prakash, and Choi, Wonbong (2011), 'An all-graphene based transparent and flexible field emission device', *Carbon,* 49, 1614-19.

Lai, S. H., et al. (2003), 'The crystalline properties of carbon nitride nanotubes synthesized by electron cyclotron resonance plasma', *Thin Solid Films,* 444 (1-2), 38-43.

Lazar, G., et al. (2005), 'Infrared Absorption Properties of Amorphous Carbon Films', *Journal of Optoelectronics and Advanced Materials,* 7 (2), 647-52.

Le Poche, Hélène, Dijon, Jean, and Goislard de Monsabert, Thomas (2007), 'Radio-frequency plasma system to selectively grow vertical field-aligned carbon nanofibers from a solid carbon source', *Carbon,* 45 (15), 2904-16.

Lee, H. Y., et al. (2005), 'The effect of r.f. substrate bias on the properties of carbon nitride films produced by an inductively coupled plasma chemical vapor deposition', *Surface and Coatings Technology,* 193 (1-3), 152-56.

Lee, Ki Rak, et al. (2010), 'Electrochemical oxygen reduction on nitrogen doped graphene sheets in acid media', *Electrochemistry Communications,* 12 (8), 1052-55.

Lee, Shih-Fong, Chang, Yung-Ping, and Lee, Li-Ying (2008), 'Effects of annealing Ni catalyst in nitrogen-containing gases on the surface morphology and field-emission properties of thermal chemical vapor deposited carbon nanotubes', *New Carbon Materials,* 23 (4), 302-08.

Lee, Sung Pil and Kang, Jong Bong (2001), 'Bonding structure analysis of carbon nitride films by Raman spectroscopy and X-ray photoelectron spectroscopy (XPS)', *Microchemical Journal,* 70 (3), 239-46.

Lejeune, M. and Benlahsen, M. (2008), 'Structural relaxation of sputtered amorphous carbon nitride films during thermal annealing', *Diamond and Related Materials,* 17 (1), 29-35.

Lejeune, M., et al. (2004), 'Microstructure related photoluminescence in a-CNx films deposited by reactive rf magnetron sputtering', *Solid State Communications,* 129 (2), 107-12.

Li, Chunyu, Thostenson, Erik T., and Chou, Tsu-Wei (2008), 'Sensors and actuators based on carbon nanotubes and their composites: A review', *Composites Science and Technology,* 68 (6), 1227-49.

Li, H., et al. (2009a), 'Control of abnormal grain inclusions in the nanocrystalline diamond film deposited by hot filament CVD', *Diamond and Related Materials,* 18 (11), 1369-74.

Li, Hongxuan, et al. (2003a), 'Preparation and characterization of hydrogenated diamond-like carbon films in a dual DC-RF plasma system', *Journal of Physics D: Applied Physics,* 36 (24), 3183.

Li, J. J., et al. (2003b), 'Thermal stability of magnetron sputtering amorphous carbon nitride films', *Vacuum,* 72 (3), 233-39.

Li, J. J., et al. (2003c), 'Compositional and structural modifications of amorphous carbon nitride films induced by thermal annealing', *Journal of Physics D: Applied Physics,* 36, 2001-05.

Li, Junjie, et al. (2002), 'Influence of substrate dc bias on chemical bonding, adhesion and roughness of carbon nitride films', *Applied Surface Science,* 191 (1-4), 273-79.

Li, Xiaolin, et al. (2009b), 'Simultaneous Nitrogen Doping and Reduction of Graphene Oxide', *Journal of the American Chemical Society,* 131 (43), 15939-44.

Li, Yafei, et al. (2009c), 'Spin Gapless Semiconductor−Metal−Half-Metal Properties in Nitrogen-Doped Zigzag Graphene Nanoribbons', *ACS Nano,* 3 (7), 1952-58.

Li, Yingai, et al. (2010), 'Nitrogen-Rich Carbon Nitride Hollow Vessels: Synthesis, Characterization, and Their Properties', *The Journal of Physical Chemistry B,* 114 (29), 9429-34.

Liao, Lei and Duan, Xiangfeng (2010), 'Graphene-dielectric integration for graphene transistors', *Materials Science and Engineering: R: Reports,* 70 (3-6), 354-70.

Lifshitz, Y., Kasi, S. R., and Rabalais, J. W. (1989), 'Subplantation model for film growth from hyperthermal species: Application to diamond', *Physical Review Letters,* 62 (11), 1290-93.

Lifshitz, Y., Lempert, G. D., and Grossman, E. (1994), 'Substantiation of subplantation model for diamondlike film growth by atomic force microscopy', *Physical Review Letters,* 72 (17), 2753-56.

Lifshitz, Y., et al. (1990), 'Subplantation model for film growth from hyperthermal species', *Physical Review B,* 41 (15), 10468-80.

Lin, Hung-Chien, et al. (2007), 'Characteristics of carbon coatings on optical fibers prepared by plasma enhanced chemical vapor deposition using different argon/methane ratios', *Carbon,* 45 (10), 2004-10.

Ling, H., et al. (2002), 'Influences of substrate bias on the composition and structure of carbon nitride thin films prepared by ECR-plasma assisted pulsed laser deposition', *Diamond and Related Materials,* 11 (8), 1584-91.

Lisi, N., et al. (2011), 'Carbon nanowall growth on carbon paper by hot filament chemical vapour deposition and its microstructure', *Carbon,* 49 (6), 2134-40.

Liu, A.Y. and Cohen, M.L. (1989), 'Prediction of New Low Compressibility Solids', *Science,* 245 (4920), 841-42.

Liu, Hao, et al. (2008), 'Aligned multi-walled carbon nanotubes on different substrates by floating catalyst chemical vapor deposition: Critical effects of buffer layer', *Surface and Coatings Technology,* 202, 4114-20.

Liu, Hao, et al. (2010), 'Structural and morphological control of aligned nitrogen-doped carbon nanotubes', *Carbon,* 48 (5), 1498-507.

Liu, J.W., et al. (2007), 'Alignment of amorphous carbon nanotubes with graphitized branches grown by radio frequency plasma-enhanced chemical vapor deposition', *Carbon,* 45, 668-89.

Liu, W., et al. (2011), 'Carbon nanosheets with catalyst-induced wrinkles formed by plasma-enhanced chemical-vapor deposition', *Carbon,* 49, 884-89.

Liu, X. W., et al. (2001a), 'Optical and structural properties of the amorphous carbon nitride by ECR-plasma', *Materials Chemistry and Physics,* 72 (2), 258-63.

Liu, X. W., et al. (2002), 'Morphology and characterization of highly nitrogenated, aligned, amorphous carbon nano-rods formed on an alumina template by ECR-CVD', *Diamond and Related Materials,* 11 (3-6), 1193-99.

Liu, X. W., et al. (2001b), 'Optical properties of amorphous carbon nitride synthesized on Si by ECR-CVD', *Surface and Coatings Technology,* 135 (2-3), 184-87.

Liu, X.W., et al. (2000), 'Electron field emission from amorphous carbon nitride nanotips', *Materials Letters,* 44, 304-08.

Lu, T. R., et al. (1999), 'High purity nano-crystalline carbon nitride films prepared at ambient temperature by ion beam sputtering', *Surface and Coatings Technology,* 115 (2-3), 116-22.

Lu, Xifeng, et al. (2009), 'Synthesis, characterization and electrocatalytic properties of carbon nitride nanotubes for methanol electrooxidation', *Solid State Sciences,* 11 (2), 428-32.

Luff, P. P. and White, M. (1970), 'The structure and properties of evaporated polyethylene thin films', *Thin Solid Films,* 6 (3), 175-95.

Ma, Xucun, et al. (1999), 'Polymerized carbon nanobells and their field-emission properties', *Applied Physics Letters,* 75 (20), 3105-07.

Majumdar, Abhijit, et al. (2007), 'Chemical composition and bond structure of carbon-nitride films deposited by CH_4/N_2 dielectric barrier discharge', *Surface and Coatings Technology,* 201 (14), 6437-44.

Maldonado, Stephen, Morin, Stephen, and Stevenson, Keith J. (2006), 'Structure, composition, and chemical reactivity of carbon nanotubes by selective nitrogen doping', *Carbon,* 44 (8), 1429-37.

Malesevic, Alexander, et al. (2007), 'Combined growth of carbon nanotubes and carbon nanowalls by plasma-enhanced chemical vapor deposition', *Carbon,* 45, 2932-37.

Mamalis, A. G., Vogtländer, L. O. G., and Markopoulos, A. (2004), 'Nanotechnology and nanostructured materials: trends in carbon nanotubes', *Precision Engineering,* 28 (1), 16-30.

Manifacier, J C and et al. (1976), 'A simple method for the determination of the optical constants n, k and the thickness of a weakly absorbing thin film', *Journal of Physics E: Scientific Instruments,* 9 (11), 1002.

Maschmann, Matthew R., et al. (2006), 'Freestanding vertically oriented single-walled carbon nanotubes synthesized using microwave plasma-enhanced CVD', *Carbon,* 44, 2758-63.

McMillan, Paul F., et al. (2009), 'Graphitic carbon nitride C6N9H3·HCl: Characterisation by UV and near-IR FT Raman spectroscopy', *Journal of Solid State Chemistry,* 182 (10), 2670-77.

Melechko, A. V., et al. (2005), 'Vertically aligned carbon nanofibers and related structures: Controlled synthesis and directed assembly', *Journal of Applied Physics,* 97 (4), 041301-39.

Meškinis, Š., et al. (2010), 'Piezoresistive, optical and electrical properties of diamond like carbon and carbon nitride films', *Diamond & Related Materials,* 19, 1249–53.

Messina, G., et al. (2002), 'Effects of hydrogen incorporation on structural relaxation and vibrational properties of a-CN:H thin films grown by reactive sputtering', *Diamond and Related Materials,* 11 (3-6), 1166-71.

Mitra, Saibal, et al. (2003), 'Hot-wire growth of multi-phase carbon nitride films', *Thin Solid Films,* 430 (1-2), 300-03.

Miyake, Shojiro, et al. (2007), 'Combined growth of carbon nanotubes and carbon nanowalls by plasma-enhanced chemical vapor deposition', *Surface and Coatings Technology,* 202, 1023-28.

Motta, E. F. and Pereyra, I. (2004), 'Amorphous hydrogenated carbon-nitride films prepared by RF-PECVD in methane-nitrogen atmospheres', *Journal of Non-Crystalline Solids,* 338-340, 525-29.

Mubumbila, N., et al. (2004), 'EELS and NEXAFS structural investigations on the effects of the nitrogen incorporation in a-CNx films deposited by r.f. magnetron sputtering', *Diamond and Related Materials,* 13 (4-8), 1433-36.

Muhl, Stephen and Méndez, Juan Manuel (1999), 'A review of the preparation of carbon nitride films', *Diamond and Related Materials,* 8 (10), 1809-30.

Mutsukura, Nobuki (2001), 'Photoluminescence and infra-red absorption of annealed a-CN_x:H films', *Diamond and Related Materials,* 10 (3-7), 1152-55.

Mutsukura, Nobuki and Akita, Ken-ichi 'Photoluminescence and infra-red absorption of hydrogenated amorphous CNx films', *Diamond and Related Materials,* 9 (3-6), 761-64.

Mutsukura, Nobuki and Akita, Ken-ichi (1999a), 'Deposition of hydrogenated amorphous CNx film in CH_4/N_2 RF discharge', *Diamond and Related Materials,* 8 (8-9), 1720-23.

Mutsukura, Nobuki and Akita, Ken-ichi (1999b), 'Infrared absorption spectroscopy measurements of amorphous CNx films prepared in CH_4/N_2 r.f. discharge', *Thin Solid Films,* 349 (1-2), 115-19.

Mutsukura, Nobuki and Akita, Ken-ichi (2000), 'Photoluminescence and infra-red absorption of hydrogenated amorphous CNx films', *Diamond and Related Materials,* 9 (3-6), 761-64.

Mutsukura, Nobuki and Daigo, Yoshiaki (2003), 'Effect of ion-bombardment on the deposition of a-CN_x:H films in CH_4/N_2 r.f. plasma', *Diamond and Related Materials,* 12 (10-11), 2057-60.

Myung, Hyun S., et al. (2006), 'Synthesis and mechanical properties of hydrogenated carbon and carbon nitride films prepared by magnetron sputtering', *Thin Solid Films,* 506-507, 87-91.

Nagatsu, M., et al. (2002), 'Characteristics of hydrogenated amorphous carbon films deposited by large-area microwave-sustained surface wave plasma', *Diamond and Related Materials,* 11 (3-6), 976-79.

Nagatsu, Masaaki, et al. (2000), 'Field-Emission Characteristics of Hydrogenated Amorphous Carbon Films Prepared by Surface Wave Plasma', *Japanese Journal of Applied Physics,* 39, L929-L32.

Nakazawa, H., et al. (2010), 'Mechanical and tribological properties of boron, nitrogen-coincorporated diamond-like carbon films prepared by reactive radio-frequency magnetron sputtering', *Diamond and Related Materials,* 19 (5-6), 503-06.

Neuhaeuser, M., et al. (2000), 'Raman spectroscopy measurements of DC-magnetron sputtered carbon nitride (a-C:N) thin films for magnetic hard disk coatings', *Diamond and Related Materials,* 9 (8), 1500-05.

Ni, Jing, et al. (2008), 'Bonding structure of a-CN_x:H films obtained in methane-nitrogen system and its influence on hardness', *Thin Solid Films,* 516 (21), 7422-26.

Noh, Young-Rok, et al. (2010), 'Coating of carbon nanotubes with amorphous carbon nitride thin films and characterization of long-term emission stability', *Thin Solid Films,* 519 (5), 1636-41.

Novoselov, K. S., et al. (2004), 'Electric Field Effect in Atomically Thin Carbon Films', *Science,* 306 (5696), 666-69.

Nozaki, Tomohiro, et al. (2007), 'Fabrication of vertically aligned single-walled carbon nanotubes in atmospheric pressure non-thermal plasma CVD', *Carbon,* 45 (2), 364-74.

Ohtsu, Y., et al. (2007), 'Effect of negative pulsed high-voltage-bias on diamond-like carbon thin film preparation using capacitively coupled radio-frequency plasma chemical vapor deposition', *Surface and Coatings Technology,* 201 (15), 6674-77.

Omer, A.M.M., et al. (2005), 'Photovoltaic characteristics of nitrogen-doped amorphous carbon thin-films grown on quartz and flexible plastic substrates by microwave surface wave plasma CVD', *Diamond & Related Materials,* 14, 1084- 88.

Panchakarla, L. S., Govindaraj, A., and Rao, C. N. R. (2010), 'Boron- and nitrogen-doped carbon nanotubes and graphene', *Inorganica Chimica Acta,* 363 (15), 4163-74.

Panwar, O. S., et al. (2006), 'Reflectance and photoluminescence spectra of as grown and hydrogen and nitrogen incorporated tetrahedral amorphous carbon films deposited using an S bend filtered cathodic vacuum arc process', *Thin Solid Films,* 515 (4), 1597-606.

Park, Yong Seob, et al. (2005), 'Characterization of CNx thin films prepared by close field unbalanced magnetron sputtering', *Thin Solid Films,* 475 (1-2), 298-302.

Pereira, Jérémy, et al. (2005), 'Characterization of hydrogenated amorphous carbon nitride particles and coatings obtained in a CH_4/N_2 radiofrequency discharge', *Thin Solid Films,* 482 (1-2), 226-31.

Phillips, R T (1983), 'A numerical method for determining the complex refractive index from reflectance and transmittance of supported thin films', *Journal of Physics D: Applied Physics,* 16 (4), 489.

Plass, M. F., et al. (2001), 'Correlation between photoluminescence, optical and structural properties of amorphous nitrogen-rich carbon nitride films', *Applied Physics A: Materials Science & Processing,* 72 (1), 21-27.

Poelman, Dirk and Smet, Philippe Frederic (2003), 'Methods for the determination of the optical constants of thin films from single transmission measurements: a critical review', *Journal of Physics D: Applied Physics,* 36 (15), 1850.

Popov, C., et al. (1999), 'Inductively coupled plasma and laser-induced chemical vapour deposition of thin carbon nitride films', *Surface and Coatings Technology,* 116-119, 261-68.

Pradeep, T., et al. (1991), 'Interaction of nitrogen with fullerenes: nitrogen derivatives of C60 and C70', *The Journal of Physical Chemistry,* 95 (26), 10564-65.

Presland, A. E. B. and White, J. R. (1969), 'Graphitisation of evaporated carbon films--I. Isochronal heat treatment of planar films', *Carbon,* 7 (1), 77-80.

Qi, J.L., et al. (2009), 'Syntheses of carbon nanomaterials by radio frequency plasma enhanced chemical vapor deposition', *Journal of Alloys and Compounds,* 486, 265-72.

Qu, Liangti, et al. (2010), 'Nitrogen-Doped Graphene as Efficient Metal-Free Electrocatalyst for Oxygen Reduction in Fuel Cells', *ACS Nano,* 4 (3), 1321-26.

Ralchenko, V., et al. (2007), 'Nitrogenated nanocrystalline diamond films: Thermal and optical properties', *Diamond and Related Materials,* 16 (12), 2067-73.

Randeniya, Lakshman, et al. (2010), 'Thin film composites of nanocrystalline ZrO2 and diamond-like carbon: Synthesis, structural properties and bone cell proliferation', *Acta Biomaterialia,* In Press, Corrected Proof.

Rao, Chitturi Venkateswara, Cabrera, Carlos R., and Ishikawa, Yasuyuki (2010), 'In Search of the Active Site in Nitrogen-Doped Carbon Nanotube Electrodes for the Oxygen Reduction Reaction', *The Journal of Physical Chemistry Letters,* 1 (18), 2622-27.

Ren, Z. F., et al. (1998), 'Synthesis of Large Arrays of Well-Aligned Carbon Nanotubes on Glass', *Science,* 282 (5391), 1105-07.

Riascos, H., et al. (2006), 'Structure and properties of pulsed-laser deposited carbon nitride thin films', *Thin Solid Films,* 497 (1-2), 1-6.

Richley, James C., Harvey, Jeremy N., and Ashfold, Michael N. R. (2009), 'On the Role of Carbon Radical Insertion Reactions in the Growth of Diamond by Chemical Vapor Deposition Methods', *The Journal of Physical Chemistry A,* 113 (42), 11416-22.

Robertson, J. (1995), 'Structural models of a-C and a-C:H', *Diamond and Related Materials,* 4 (4), 297-301.

Robertson, J. (1996a), 'Electronic processes in hydrogenated amorphous carbon', *Journal of Non-Crystalline Solids,* 198-200 (Part 2), 615-18.

Robertson, J. (1996b), 'Recombination and photoluminescence mechanism in hydrogenated amorphous carbon', *Physical Review B,* 53 (24), 16302.

Robertson, J. (1997), 'Gap states in diamond-like amorphous carbon', *Philosophical Magazine Part B,* 76 (3), 335 - 50.

Robertson, J. (2002a), 'Diamond-like amorphous carbon', *Materials Science and Engineering: R: Reports,* 37 (4-6), 129-281.

Robertson, J. (2003), 'Electronic and atomic structure of diamond-like carbon', *Semiconductor Science and Technology,* 18 (3), S12.

Robertson, John (1983), 'Electronic structure of amorphous semiconductors', *Advances in Physics,* 32 (3), 361-452.

Robertson, John (2002b), 'Properties and prospects for non-crystalline carbons', *Journal of Non-Crystalline Solids,* 299-302 (Part 2), 798-804.

Rodil, S. E. and Muhl, S. (2004), 'Bonding in amorphous carbon nitride', *Diamond and Related Materials,* 13 (4-8), 1521-31.

Ru, Lili, et al. (2010), 'Hydrogen-free diamond-like carbon films prepared by microwave electron cyclotron resonance plasma-enhanced direct current magnetron sputtering', *Thin Solid Films,* 519 (1), 86-90.

Rusop, M., et al. (2006), 'Effects of methane gas flow rate on the optoelectrical properties of nitrogenated carbon thin films grown by surface wave microwave plasma chemical vapor deposition', *Diamond and Related Materials,* 15 (2-3), 371-77.

Rusop, M., et al. (2005), 'Effects of deposition gas pressure on the properties of hydrogenated amorphous carbon nitride films grown by surface wave microwave plasma chemical vapor deposition', *Diamond and Related Materials,* 14 (3-7), 975-82.

Sánchez Aké, C., Sobral, H., and Villagrán-Muniz, M. (2007), 'Plasma characterization of cross-beam pulsed-laser ablation used for carbon thin film deposition', *Thin Solid Films,* 516, 8–12.

Sasaoka, Hideki and Nishimura, Kazuhito (2011), 'Investigation of field emission properties of nanorods formed on nanostructured laminated films', *Diamond and Related Materials,* 20 (2), 259-63.

Secroun, A., et al. (2007), 'Photoconductive properties of lightly N-doped single crystal CVD diamond films', *Diamond & Related Materials,* 16, 953-57.

Sharma, A.K., et al. (2000), 'Structural and tribological characteristics of diamond-like carbon films deposited by pulsed laser ablation', *Materials Science and Engineering B,* 77, 139-43.

Sharma, S. P. and Lakkad, S. C. (2009), 'Morphology study of carbon nanospecies grown on carbon fibers by thermal CVD technique', *Surface and Coatings Technology,* 203 (10-11), 1329-35.

Shen, X. K., et al. (2006), 'Spectroscopic study on pulsed laser ablation of graphite target in ECR nitrogen plasma for carbon nitride film deposition', *Diamond and Related Materials,* 15 (9), 1350-56.

Shi, J. R., et al. (2002), 'Photoelectron emission and Raman scattering studies of nitrogenated tetrahedral amorphous carbon films', *Journal of Applied Physics,* 92 (10), 5966-70.

Shiao, Jeansong and Hoffman, Richard W. (1996), 'Studies of diamond-like and nitrogen-containing diamond-like carbon using laser Raman spectroscopy', *Thin Solid Films,* 283 (1-2), 145-50.

Shih, Wen-Ching, et al. (2010), 'Fabrication of carbon nanoflakes by RF sputtering for field emission applications', *Vacuum,* 84 (12), 1452-56.

Shimabukuro, Seiji, et al. (2008), 'Effect of hydrogen dilution in preparation of carbon nanowall by hot-wire CVD', *Thin Solid Films,* 516 (5), 710-13.

Shimada, S., Teii, K., and Nakashima, M. (2010), 'Low threshold field emission from nitrogen-incorporated carbon nanowalls', *Diamond and Related Materials,* 19 (7-9), 956-59.

Shimada, Yoshihito, Mutsukura, Nobuki, and Machi, Yoshio (1993), 'Synthesis of diamond using iron catalyst by r.f. plasma chemical vapor deposition', *Diamond and Related Materials,* 2 (5-7), 656-60.

Silverstein, Robert M. and Webster, Francis X. (1997), *Spectrometric identification of organic compounds* (6 edn.; New York: John Wiley & Sons, Inc.).

Singh, Dilip K., Iyer, P. K., and Giri, P. K. (2010), 'Diameter dependence of interwall separation and strain in multiwalled carbon nanotubes probed by X-ray diffraction and Raman scattering studies', *Diamond and Related Materials,* 19 (10), 1281-88.

Smietana, Mateusz, Bock, Wojtek J., and Szmidt, Jan 'Evolution of optical properties with deposition time of silicon nitride and diamond-like carbon films deposited by radio-frequency plasma-enhanced chemical vapor deposition method', *Thin Solid Films,* In Press, Accepted Manuscript.

Smith, Steven M., et al. (2001), 'Nitrogen-doped plasma enhanced chemical vapor deposited (PECVD) amorphous carbon: processes and properties', *Thin Solid Films,* 398-399, 163-69.

Sohn, Jung Inn, Nam, Chunghee, and Lee, Seonghoon (2002), 'Vertically aligned carbon nanotube growth by pulsed laser deposition and thermal chemical vapor deposition methods', *Applied Surface Science,* 197-198, 568-73.

Somani, Prakash R., Somani, Savita P., and Umeno, Masayoshi (2006), 'Planer nano-graphenes from camphor by CVD', *Chemical Physics Letters,* 430 (1-3), 56-59.

Srivastava, Sanjay K., et al. (2006), 'Enhanced field emission characteristics of nitrogen-doped carbon nanotube films grown by microwave plasma enhanced chemical vapor deposition process', *Thin Solid Films,* 515, 1851-56.

Sun, Hai-Lin, et al. (2002), 'Scanning tunneling microscopy study of polymerized carbon nanobells: Electronic effect and evidence of nitrogen incorporation', *Physical Review B,* 66 (8), 085423.

Sung, S.L., et al. (1999), 'Well-aligned carbon nitride nanotubes synthesized in anodic alumina by electron cyclotron resonance chemical vapor deposition', *Applied Physics Letters,* 74 (2), 197-99.

Suzuki, Satoru and Hibino, Hiroki 'Characterization of doped single-wall carbon nanotubes by Raman spectroscopy', *Carbon,* Article in Press.

Swain, Bibhu P., Swain, Bhabani S., and Hwang, Nong M. (2009), 'Effect of H2 dilution on a-CN:H films deposited by hot-wire chemical vapor deposition', *Applied Surface Science,* 255 (22), 9264-67.

Szörényi, T. and Geretovszky, Zs (2004), 'Comparison of growth rate and surface structure of carbon nitride films, pulsed laser deposited in parallel, on axis planes', *Thin Solid Films,* 453-454, 431-35.

Tanarro, I., et al. (2007), 'Ion Chemistry in Cold Plasmas of H_2 with CH_4 and N_2', *The Journal of Physical Chemistry A,* 111 (37), 9003-12.

Tang, C.J., et al. (2010), 'Investigation of nitrogen addition on hydrogen incorporation in CVD diamond films from polycrystalline to nanocrystalline', *Diamond & Related Materials,* 19, 404-08.

Tang, Y., et al. (2011), 'Characterization of hydrogenated amorphous carbon thin films by end-Hall ion beam deposition', *Applied Surface Science,* 257 (10), 4699-705.

Teii, Kungen and Nakashima, Masahiro (2010), 'Synthesis and field emission properties of nanocrystalline diamond/carbon nanowall composite films', *Applied Physics Letters,* 96 (2), 023112.

Ting, Jyh-Ming and Lin, Szu-Hsien (2007), 'Growth and characteristics of carbon nanotubes obtained under different C2H2/H2/NH3 concentrations', *Carbon,* 45 (10), 1934-40.

Tóth, S., et al. (2006), 'Influence of layer thickness on the photoluminescence and Raman scattering of a-C:H prepared from benzene', *Diamond and Related Materials,* 15 (4-8), 967-71.

Tóth, S., et al. (2003), 'Electronic structure of pulsed laser deposited carbon thin films monitored by photoluminescence', *Diamond and Related Materials,* 12 (3-7), 911-16.

Tzeng, Shinn-Shyong, et al. 'Surface characterization and nanomechanical properties of diamond-like carbon films synthesized by RF plasma enhanced chemical vapor deposition', *Thin Solid Films,* In Press, Corrected Proof.

Uddin, Md Nizam, et al. (2005), 'Deposition and characterization of carbon nitride films from hexamethylenetetramine/N2 by microwave plasma-enhanced chemical vapor deposition', *Applied Surface Science,* 240 (1-4), 120-30.

Ujvári, T., et al. (2001), 'Composition and chemical structure characteristics of CNx layers prepared by different plasma assisted techniques', *Solid State Ionics,* 141-142, 63-69.

Valentini, L., et al. (2001a), 'Structure and mechanical properties of argon assisted carbon nitride films', *Thin Solid Films,* 398-399, 124-29.

Valentini, L., et al. (2001b), 'Effect of nitrogen addition on the elastic and structural properties of amorphous carbon thin films', *Thin Solid Films,* 389 (1-2), 315-20.

Varshney, Deepak, Weiner, Brad R., and Morell, Gerardo (2010), 'Growth and field emission study of a monolithic carbon nanotube/diamond composite', *Carbon,* 48 (12), 3353-58.

Wang, B. B. and Zhang, B. (2006), 'Effects of carbon film roughness on growth of carbon nanotip arrays by plasma-enhanced hot filament chemical vapor deposition', *Carbon,* 44 (10), 1949-53.

Wang, Chengbing, Yang, Shengrong, and Zhang, Junyan (2008a), 'Correlation between nitrogen incorporation and structural modification of hydrogenated carbon nitride films', *Journal of Non-Crystalline Solids,* 354 (15-16), 1608-14.

Wang, Chengbing, Yang, Shengrong, and Zhang, Junyan (2008b), 'The infrared characteristics investigation of carbon nitride films', *Diamond and Related Materials,* 17 (2), 174-79.

Wang, Da-Wei, Gentle, Ian R., and Lu, Gao Qing (2010a), 'Enhanced electrochemical sensitivity of PtRh electrodes coated with nitrogen-doped graphene', *Electrochemistry Communications,* 12 (10), 1423-27.

Wang, Haibo, et al. (2011a), 'Nitrogen-doped graphene nanosheets with excellent lithium storage properties', *Journal of Materials Chemistry,* 21 (14), 5430-34.

Wang, J. J., et al. (2004a), 'Free-standing subnanometer graphite sheets', *Applied Physics Letters,* 85 (7), 1265-67.

Wang, Jianjun, et al. (2000), 'Hydrogen-containing carbon nitride films produced by the combined hot filament-plasma CVD technique', *Thin Solid Films,* 377-378, 280-84.

Wang, Jianjun, et al. (2004b), 'Synthesis of carbon nanosheets by inductively coupled radio-frequency plasma enhanced chemical vapor deposition', *Carbon,* 42, 2867-72.

Wang, Jun and Lin, Yuehe (2008), 'Functionalized carbon nanotubes and nanofibers for biosensing applications', *TrAC Trends in Analytical Chemistry,* 27 (7), 619-26.

Wang, Kai, et al. (2011b), 'The field emission of vacuum filtered graphene films reduced by microwave', *Applied Surface Science,* 257 (13), 5808-12.

Wang, Sigen, et al. (2006a), 'High field emission reproducibility and stability of carbon nanosheets and nanosheet-based backgated triode emission devices', *Applied Physics Letters,* 89 (18), 183103.

Wang, X. C., et al. (2006b), 'Annealing effects on the microstructure of amorphous carbon nitride films', *Applied Surface Science,* 253 (4), 2087-92.

Wang, Xinran, et al. (2009), 'N-Doping of Graphene Through Electrothermal Reactions with Ammonia', *Science,* 324 (5928), 768-71.

Wang, Ying, et al. (2010b), 'Nitrogen-Doped Graphene and Its Application in Electrochemical Biosensing', *ACS Nano,* 4 (4), 1790-98.

Wang, Yongjun, et al. (2011c), 'Microstructure, mechanical and tribological properties of graphite-like amorphous carbon films prepared by unbalanced magnetron sputtering', *Surface and Coatings Technology,* 205 (8-9), 3058-65.

Weeks, M.L., et al. (2008), 'A reagentless enzymatic amperometric biosensor using vertically aligned carbon nanofibers (VACNF)', *Sensors and Actuators B: Chemical,* 133, 53-59.

Wei, Dacheng, et al. (2009), 'Synthesis of N-Doped Graphene by Chemical Vapor Deposition and Its Electrical Properties', *Nano Letters,* 9 (5), 1752-58.

Wu and Yang (2002), 'Effects of Localized Electric Field on the Growth of Carbon Nanowalls', *Nano Letters,* 2 (4), 355-59.

Wu, A. M., et al. (2006), 'Diamond-like carbon thin films prepared by ECR argon plasma assisted pulsed laser deposition', *Diamond and Related Materials,* 15 (9), 1235-41.

Wu, J. J., et al. (2000), 'Effect of carbon sources on silicon carbon nitride films growth in an electron cyclotron resonance plasma chemical vapor deposition reactor', *Diamond and Related Materials,* 9 (3-6), 556-61.

Wu, J. J., et al. (1999), 'Nano-carbon nitride synthesis from a bio-molecular target for ion beam sputtering at low temperature', *Diamond and Related Materials,* 8 (2-5), 605-09.

Wu, Wei, et al. (2010), 'Wafer-scale synthesis of graphene by chemical vapor deposition and its application in hydrogen sensing', *Sensors and Actuators B: Chemical,* 150 (1), 296-300.

Xiao, Zhiming, et al. (2010), 'Field Electron Emission Characteristics and Physical Mechanism of Individual Single-Layer Graphene', *ACS Nano,* 4 (11), 6332-36.

Xu, Eryang, et al. (2010), 'Doped carbon nanotube array with a gradient of nitrogen concentration', *Carbon,* 48 (11), 3097-102.

Yabe, Y., et al. (2004), 'Synthesis of well-aligned carbon nanotubes by radio frequency plasma enhanced CVD method', *Diamond and Related Materials,* 13 (4-8), 1292-95.

Yang, Li, et al. (2006), 'Direct Growth of Highly Organized Crystalline Carbon Nitride from Liquid-Phase Pulsed Laser Ablation', *Chemistry of Materials,* 18 (21), 5058-64.

Yasui, Toshiaki, et al. (2004), 'Carbon nitride films deposited by reactive sputtering and pulsed laser ablation', *Thin Solid Films,* 457 (1), 133-38.

Yeong, K S and et al. (2006), 'The growth mechanism and field-emission properties of single carbon nanotips', *Nanotechnology,* 17 (15), 3655.

Yi, JY and Bernholc, J (1993), 'Atomic structure and doping of microtubules', *Phys. Rev Lett.,* 47, 1708-11.

Yokomichi, Haruo, Masuda, Atsushi, and Kishimoto, Naoki (2001), 'Fabrication of amorphous carbon nitride films by hot-wire chemical vapor deposition', *Thin Solid Films,* 395 (1-2), 249-52.

Yoon, S. F., et al. (1999), 'Deposition of polymeric nitrogenated amorphous carbon films (a-C:H:N) using electron cyclotron resonance CVD', *Thin Solid Films,* 340 (1-2), 62-67.

Yu, G. Q., Lee, S.H., and Lee, J.J. (2002a), 'Effects of thermal annealing on amorphous carbon nitride films by r.f. PECVD', *Diamond and Related Materials,* 11 (9), 1633-37.

Yu, G. Q., et al. (2002b), 'Synthesis and characterization of carbon nitride thin films prepared by rf plasma enhanced chemical vapor deposition', *Surface and Coatings Technology,* 154 (1), 68-74.

Yu, Guo-Qing, Lee, Seung-Hoon, and Lee, Jung-Joong (2002c), 'Effects of thermal annealing on amorphous carbon nitride films by r.f. PECVD', *Diamond and Related Materials,* 11 (9), 1633-37.

Yu, Kehan, et al. (2011), 'Patterning Vertically Oriented Graphene Sheets for Nanodevice Applications', *The Journal of Physical Chemistry Letters,* 2 (6), 537-42.

Yu, Shan-Sheng and Zheng, Wei-Tao (2010), 'Effect of N/B doping on the electronic and field emission properties for carbon nanotubes, carbon nanocones, and graphene nanoribbons', *Nanoscale,* 2 (7), 1069-82.

Zhang, Bin, et al. (2010a), 'Structure evolution from nanocolumns to nanoporous of nitrogen doped amorphous carbon films deposited by magnetron sputtering', *Applied Surface Science,* 256 (22), 6506-11.

Zhang, G. F., Geng, D. S., and Yang, Z. J. (1999a), 'High nitrogen amounts incorporated diamond films deposited by the addition of nitrogen in a hot-filament CVD system', *Surface and Coatings Technology,* 122 (2-3), 268-72.

Zhang, G. Y., et al. (2002), 'Polymerized carbon nitride nanobells', *Journal of Applied Physics,* 91 (11), 9324-32.

Zhang, Le-Sheng, et al. (2010b), 'Identification of the nitrogen species on N-doped graphene layers and Pt/NG composite catalyst for direct methanol fuel cell', *Physical Chemistry Chemical Physics,* 12 (38), 12055-59.

Zhang, M., Nakayama, Y., and Kume, M. (1999b), 'Room-temperature electroluminescence from hydrogenated amorphous carbon nitride film', *Solid State Communications,* 110 (12), 679-83.

Zhang, M., Pan, L., and Nakayama, Y. (2000), 'Structural modifications of hydrogenated amorphous carbon nitride due to ultraviolet light irradiation and thermal annealing', *Journal of Non-Crystalline Solids,* 266-269 (Part 2), 815-20.

Zhang, Zhihong, et al. (1999c), 'Formation of cubic C3N4 thin films by plasma enhanced chemical vapor deposition', *Thin Solid Films,* 346 (1-2), 96-99.

Zhao, L., et al. (2011a), 'Influence of copper crystal surface on the CVD growth of large area monolayer graphene', *Solid State Communications,* 151 (7), 509-13.

Zhao, M. L., et al. (2011b), 'Differences in cytocompatibility and hemocompatibility between carbon nanotubes and nitrogen-doped carbon nanotubes', *Carbon,* 49 (9), 3125-33.

Zhong, Dingyong, et al. (2001), 'Large-scale well aligned carbon nitride nanotube films: Low temperature growth and electron field emission', *Journal of Applied Physics,* 89 (11), 5939-43.

Zhong, Yu, et al. (2010), 'Synthesis of high nitrogen doping of carbon nanotubes and modeling the stabilization of filled DAATO@CNTs (10,10) for nanoenergetic materials', *Journal of Physics and Chemistry of Solids,* 71 (2), 134-39.

Zhou, Yanping, et al. (2006), 'Hard silicon carbonitride films obtained by RF-plasma-enhanced chemical vapour deposition using the single-source precursor bis(trimethylsilyl)carbodiimide', *Journal of the European Ceramic Society,* 26 (8), 1325-35.

Zhou, Z. B., et al. (2002), 'Schottky solar cells with amorphous carbon nitride thin films prepared by ion beam sputtering technique', *Solar Energy Materials and Solar Cells,* 70 (4), 487-93.

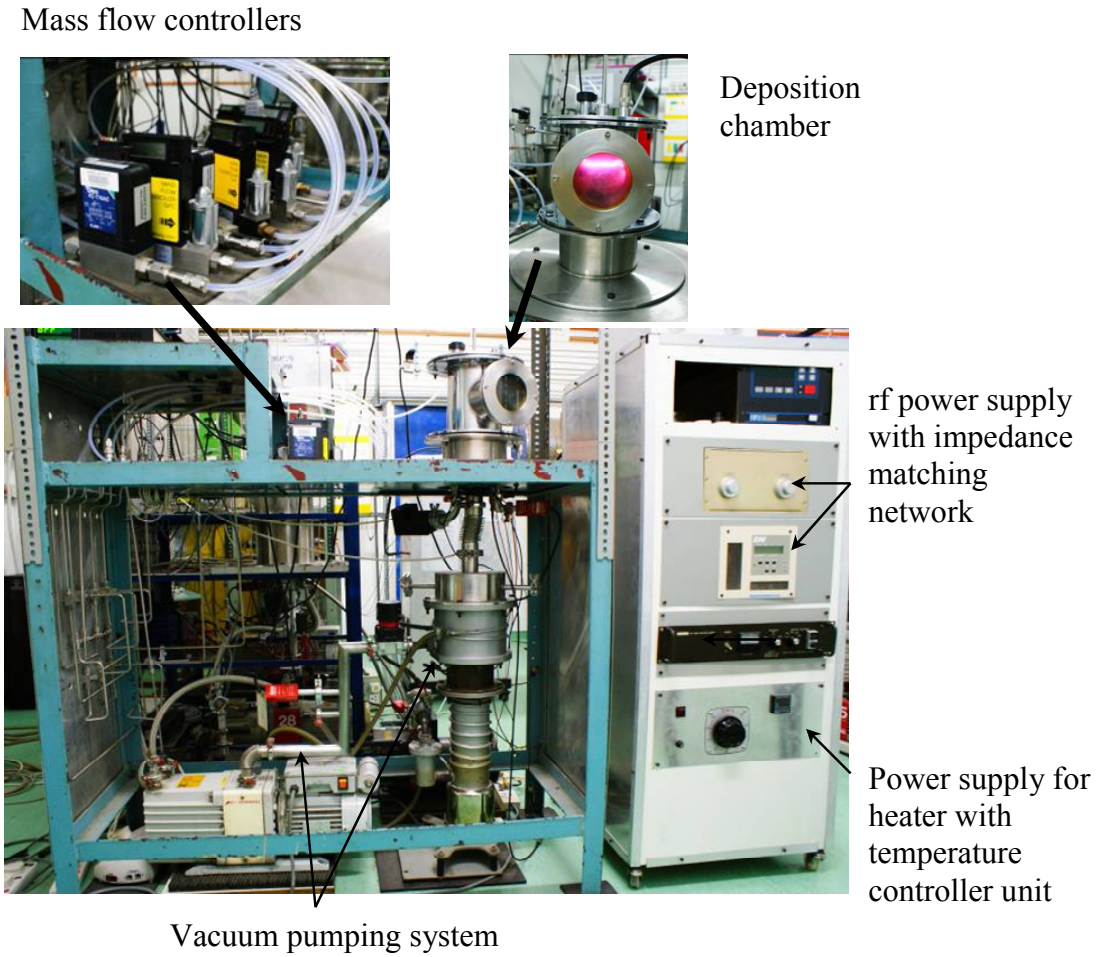
Zhou, Zhimin, Xia, Lifang, and Sun, Mingren (2003), 'The investigation of carbon nitride films annealed at different temperatures', *Applied Surface Science,* 210 (3-4), 293-300.

Zhu, M. Y., et al. (2011), 'Enhanced field emission of vertically oriented carbon nanosheets synthesized by C2H2/H2 plasma enhanced CVD', *Carbon,* 49 (7), 2526-31.

Zhu, Mingyao, et al. (2007), 'Synthesis of carbon nanosheets and carbon nanotubes by radio frequency plasma enhanced chemical vapor deposition', *Diamond & Related Materials,* 16, 196-201.

Zou, Y. S., Li, Z. X., and Wu, Y. F. (2010), 'Deposition and characterization of smooth ultra-nanocrystalline diamond film in $CH_4/H_2/Ar$ by microwave plasma chemical vapor deposition', *Vacuum,* 84 (11), 1347-52.

APPENDICES



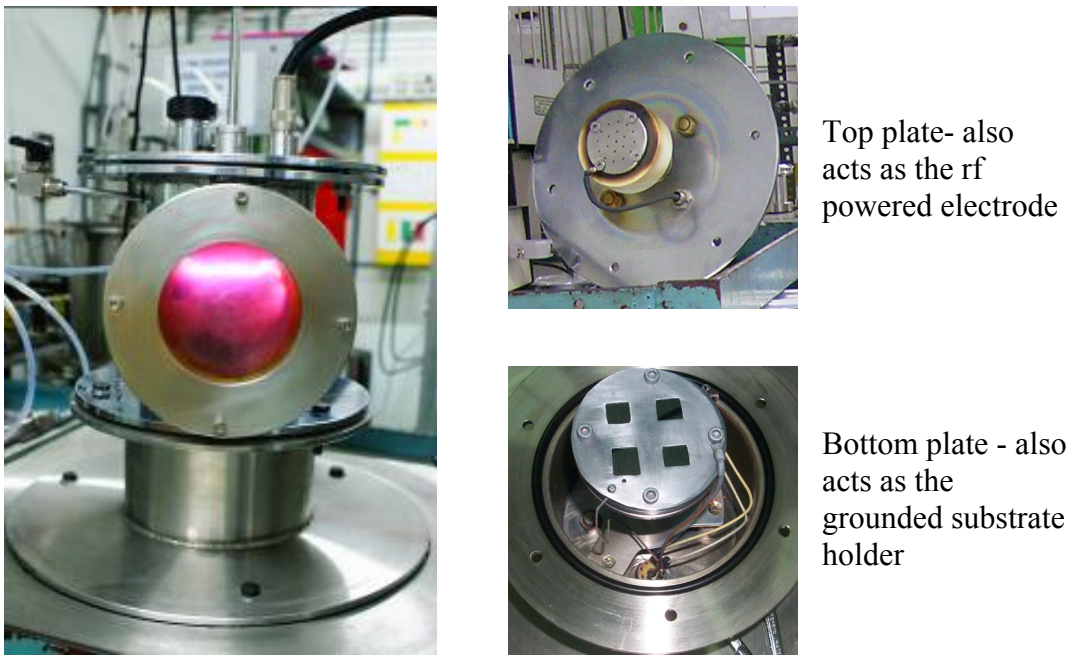


Figure A1: The home-built rf PECVD system employing parallel plate electrodes for the fabrication of the polymeric and nanostructured carbon nitride films in this work.

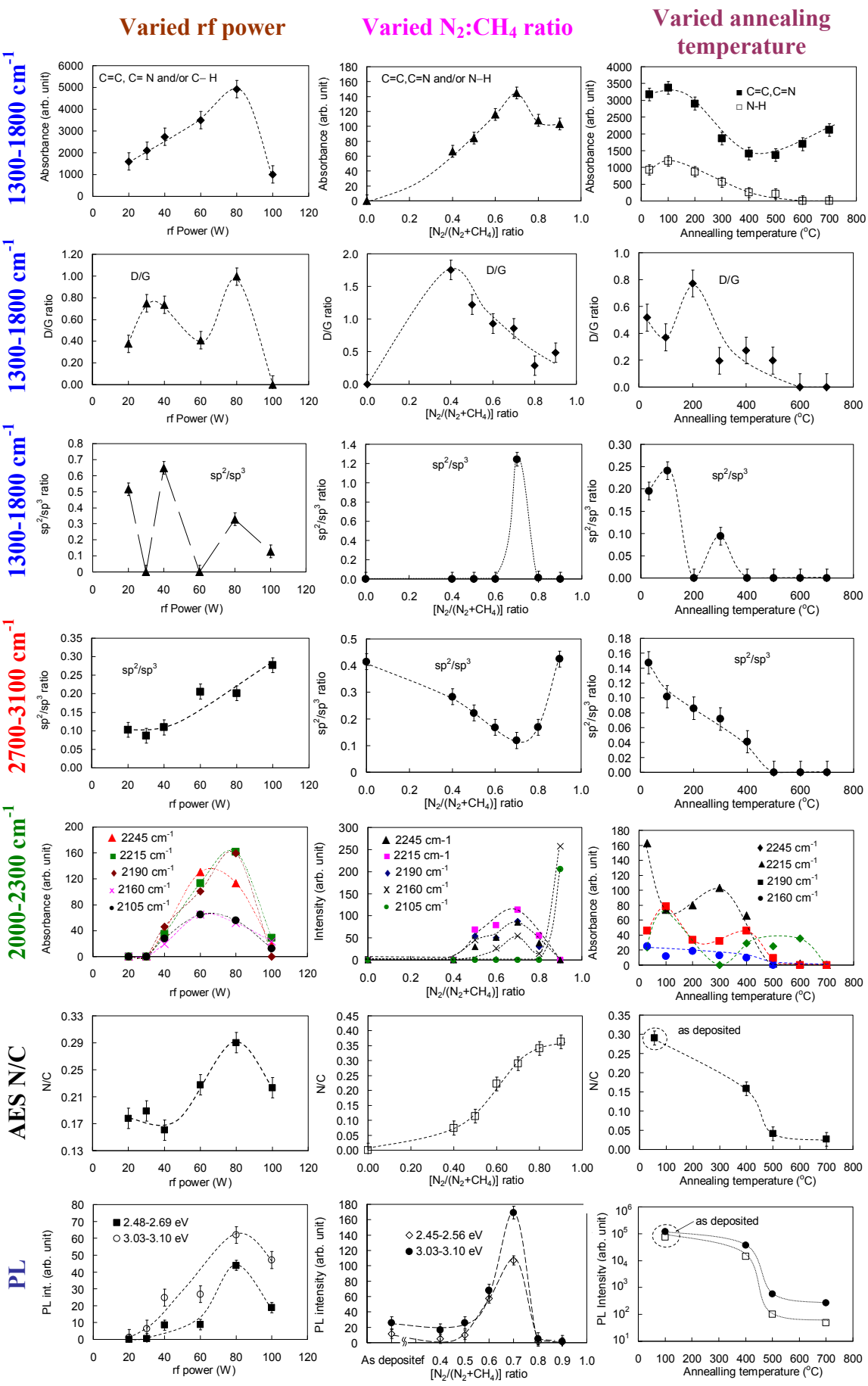


Figure A2: Various trends in bonding and structural characteristics calculated from the Gaussian fittings of FTIR spectra for different deposition parameters at different spectra range. Also included are their corresponding AES N/C and PL results.