9. Referências Bibliográficas

[1] P.K Jena et al. "In-situ formation of Cu-Al_2O_3 nano-scale composites by chemical routes and studies on their microsctructures," Materials Science and Engineerin A **313** (2001) 180-186.

[2] P. Morgan. Carbon fibers and their composites. Taylor and Francis group, 2005.

[3] B.K.G. Theng. Polymer-clay nanocomposites. Developments in clay science. Volume **4** (2012) 201-241.

[4] Iijima, S. Helical microtubes of graphitic carbon. *Nature* **56** (1991) 354.

[5] P.S.Guo, et al. A novel approach to mass synthesis of raw CNTs for printed field emission cathodes by chemical vapour deposition. Materials Letters volume **60**, Issue 7 (2006) 966-969.

[6] Duesberg, G. et al. Ways towards the scaleable integration of carbon nanotubes into silicon based technology. Diamond and Related Materials **13** (2006) 354.

[7] Krishnan, A., Dujardin, E., Ebessen, T., Yianilos, P. and Tracy, M. Young modulus of single- walled nanotubes. Physical Review B **58**, (1998) 140-143

[8] William A. Curtin and Brian W. Sheldon. CNT-reinforced ceramics and metals. Materialstoday, Vol 7 (2004) 44-49.

[9] P.J.F.Harris. Carbon nanotube composites. International Materials Reviews. Volume **49**, No1 (2004) 31-43.

[10] Chen W.X.; Lee J.Y.; Liu Z. Electrochemical lithiation and de-lithiation of carbon nanotube-Sn_2Sb nanocompósitos. Electrochemistry Communications, Volume **4**, Number 3 (2002) 260-265.

[11] J.P.Tu, et al. Tribological properties of carbon nanotube reinforced copper composites. Tribological letters. Vol **10**, No 4 (2001) 225-228.

[12] S.R.Dong, J.P. Tu, X.B. Zhang. Na Investigation of sliding wear behavior of Cu-matrix composite reinforced by carbon nanotubes. Materials Science & Engineering. A **313** (2001) 83-87.

[13] Ke Chu et al. Fabrication and effective thermal conductivity of multi-walled carbon nanotubes reinforced Cu matrix composites for heat skin applications. Composites Science and Technology **70** (2010) 298-304.

[14] E. Dujardin, T.W. Ebbesen, H. Hiura, K. Tanigaki. Capillarity and wetting of carbon nanotubes. Science. Vol **265** (1994) 1850-1852.

[15] Kannan Balasubramanian and Marko Burghard. Chemically Functionalized Carbon Nanotubes.Small Journal **1** (2005) 180-192.

[16] Teri Wang Odom et al. Atomic structure and electronic properties of single-walled carbon nanotubes. Nature 391 (1998) 62-64.

[17] M. Terrones et al. Carbon nanotubes: synthesis and properties, electronic devices and other emerging aplications. International Material Reviews **49** (6) (2004) 349-349.

[18] Ayala. P. Efeitos de fonte precursora no controle da dopagem e ambiente químico em nanotubos de carbono dopados com nitrogênio. Tese de doutorado PUC-Rio. Janeiro de 2007

[19] P.C. Collins et al. Engineering carbon nanotubes and nanotube circuits using electrical breakdown. Science **292** (2001) 706-709.

[20] González, Dunieskys. Incorporação de fósforo em nanotubos de carbono de paredes múltiplas. Tese de doutorado PUC-Rio de Janeiro, 2011.

[21] Berber, S. et al. Unusually high thermal conductivity of carbon nanotubes . Physics Review Letters **84** (2000) 4613-4616.

[22] Ando, Y. et al. Physical Properties of multi walled carbon nanotubes. International Journal of Inorganic Materials 1 (1999) 77-82.

[23] http://www.metalica.com.br, Asesado 20/04/2012.

[24] V.A. Sinani et al. Absorption Properties of hybrid composites of gold nanorods and functionalized single-walled carbon nanotubes American Chemical Society, 127 (2005) 3463.

[25] Mendoza, M.E. Síntese processamento e caracterização de nanocompósitos Cu-CNT. Dissertação de Mestrado PUC-Rio (2008).

[26] Jonrong Yu et al. Controlling the dispersion of multi-wall carbon nanotubes in aqueous surfactant solution. Carbon **45** (2007) 618-623.

[27] Jinweit Ning et al. Surfactants assisted processing of carbon nanotube-reinforced SiO_2 matrix composites. Ceramics International **30** (2004) 63-67.

[28] Ming Zheng et al. DNA-assisted dispersion and separation of carbon nanotubes. Articles. DOI 10.1038/nmat877 (2003)

[29] Macedo Feiosa, Johnny Peter. Funcionalização covalente e não covalente de nanotubos de carbono. Dissertaçao de mestrado. Universidade Federal do Ceará, 2009.

[30] Yu-Chun Chiang et al. The influence of treatment duration on multi-walled carbon nanotubes functionalized by H_2SO_4/HNO_3 oxidation. Applied Surface Science **257**(2011) 2401-2410.

[31] Kevin A. Wepasnick et al. Surface and structural charcterization of multi-walled carbon nanotubes following different oxidative treatments. Carbon **49** (2011) 24-36.

[32] A.P. Lemes Morphologies and Thermal stabilities changes on nitric acid oxidized multiwalled carbon nanotubes. Procedings ICAM 2009.

[33] Tuan anh Pham et al. Water dispersible multi-walled carbon nanotubes and novel hybrid nanostructures. Syntheis and Reactivity in Inorganic, Metal-Organic and Nano-Metal Chemistry **40** (2010) 216-224.

[34] E.G. Castro et al. The effect of different chemical treatment on the structure and dispersion of multi-walled carbon nanotunes. Procedings ICAM 2009.

[35] G. Maurin et al. Segmented and opened multi-walled carbon nanotubes. Carbon **39** (2001) 1273-1278.

[36] K.P.S.S. Hembram, G. Mohan Rao. Structural and surface features of multiwall carbon nanotube. Applied Surface Science **257** (2011) 5503-5507.

[37] Mavati-Niasari, Mehdi Bazarganipoursoud. Synthesis, characterization and alcohol oxidation properties of multi-wall carbon nanotubes functionalized with a cobalt (II) Schiff base complex. Transition Met. Chemistry **34** (2009) 605-612.

[38] J. Liu et al. Microwave-assisted functionalization of SWNTs through diazonium. Journal of Nanoscience and nanotechnology **7** (2007) 3519-3523.

[39] Hanxun Qiu et al. Diameter-selective purification of carbon nanotubes by microwave-assisted acid processing. Separation and Purification Technology 96 (2012) 182–186.

[40] Xiaohui Peng and Stanislaus S. Wong. Functional covalente chemistry of carbon nanotube surfaces. Advanced Materials **21** (2009).625-642.

[41] P. Ciambelli at al. Wide characterisation to compare conventional and highly effective microwave purification and functionalization of multi-wall carbon nanotubes. Thin solid Films **519** (2011) 2121-2131.

[42] Chao-Yin Kuo Desorption and re-sorption of carbon nanotubes: Comparisons of sodium hydroxide and microwave irradiation processes. Journal of Hazardous Materials **152** (2008) 949-954.

[43] Yadong Xue et al. Noncovalent functionalization of carbon nanotubes with lectin for label-free dynamic monitoring of cell-surface glycan experssion. Analytical biochemistry **410** (2011) 92-97.

[44] S. Khabazian, S. Sanjabi. The effect of multi-walled carbon nanotube pretreatments on the electrodeposition of Ni-MWCNTs coatings. Applied Surface Science **257** (2011) 5850-5856.

[45] Bijay P. Tripathi, et al. Nanostructured membranes and electrodes with sulfonic acid functionalized carbon nanotubes. Journal of Powder Sources **196** (2011) 911-919.

[46] Z.Q. Zhang et al. Mechanical properties of functionalized carbon nanotubes. Nanotechnology **19** (2008) 385702 (6pp).

[47] Changyu Tang et al. Wet-grinding assited ultrasonic dispersion of prostine multi-walled carbon nanotubes (MWCNTs) in chitosan solution. Colloids and Surfaces B: Biointerfaces **86** (2011) 189-197.

[48] E.A. Zaragoza-Contreras et al. Evidence of multi-walled carbon nanotube fragmentation induced by sonication during nanotube encapsulation via bulk-suspension polymerization. Micron **40** (2009) 621-627.

[49] Yeseul Kim et al. Dispersity and Stability measurements of functionalized multiwalled carbon nanotubes in orgânic solvents. Current Applied Physics **9** (2009) e100-e103.

[50] Ana L. Martínez-Hernández et al. Carbon nanotubes composites. Processing, grafting and mechanical and termal properties. Current Nanoscience 6 (2010) 12-39.

[51] C.A. Furtado et al. Debunding and dissolution of single-walled carbon nanotubes in amide solvents. Journal Amercan Chemical Society **126** (2004) 6095-6105.

[52] Beate Krause et al. A method for determination of length distributions of multiwalled carbon nanotubes before and after melt processing. Carbon **49** (2011) 1243-1247.

[53] Qiaohuan Cheng BEng Meng. Dispersion of single-walled carbon nanotubes in organic solvents. Tése de doutorado Dublin Institue of Technology, 2010.

[54] Arvind Agarwal, Srinivasa Rao Bakshi, Debrupa Lahiri. Carbon nanotubes reinforced metal matrix composites. CRC Press, Taylor & Francis Group. New York, 2011.

[55] Morsi, K. et al Electrochemical detection of carbohydrates using copper nanoparticles and carbon nanotubes. Analytica Chemica Acta **516** (2004) 35-41.

[56] Dingsheng, Y. et al Electroless deposition of Cu on multiwalled carbon nanotubes. Rare Metals **25**(3) (2006) 237-240.

[57] Min Deng et al. Fabrication of Ni-matrix carbon nanotube field emitters using composite electroplating and micromachining. Carbon **47** (2009) 3466-3471.

[58] Zhixin Kang et al. Fabrication of super-hydrophobic surface on copper surface by polymer plating. Journal of Materials Processing Technology **209** (2009) 4543-4547.

[59] S. R. Bakshi et al. Aluminum composite reinforced with multiwalled carbon nanotubes from plasma spraying of spray dried powders. Surface & Coatings Technology **203** (2009) 1544-1554.

[60] Chunnian He, et al. Synthesis of binary and triple carbon nanotubes over Ni/Cu/Al_2O_3 catalyst by chemical vapor deposition. Materials Letters **61** (2007) 4940-4943.

[61] Laha, T. Et al. Synthesis and characterization of plasma spray formed carbon nanotube reinforced aluminum composite. Materials Science and Engineering A **381** (2004)249-258.

[62] Ci, L. et al. Investigation of the interfacial reaction between multi-walled carbon nanotubes and aluminum. Acta Materilia **54** (2006) 5367-5375.

[63] Y.L.Yang et al. Single-Walled carbon nanotube-reinforced copper composite coatings prepared by electrodeposition under ultrasonic field. Materials Letters **62** (2008) 47-50.

[64] Caliu Xu et al. Preparation of copper nanoparticles on carbon nanotubes by electroless plating method. Materials Research Bulletin **39** (2004)1499-1505.

[65] Chen, X.H. et al. Electrodeposited nickel composites containing carbon nanotubes. Surface Coating Technology **155** (2002) 274-278.

[66] Cha, S.I. et al. Extraordinary strenghtening effect of carbon nanotubes in metal-matrix nanocomposites processed by molecular-level mixing. Advanced Materials **17** (2005) 1377-1381.

[67] Kim, H.N et al. Enhanced microhardness of nanocrystalline carbon nanotube reinforced Cu composite using planar shock-wave compactation. Scripta Materalia **61** (2009) 871-874.

[68] Kim, K.T. Hardness and wear resistance of carbon nanotube reinforced Cu matrix nanocomposites. Materials Science and engineering A 449-**451** (2007) 46-50.

[69] Ping, C. et al Preparation of Cu/CNT composite particles and catalytic performance on thermal decomposition of ammonium perchlorate. Prop.,Explos., Pyrotech. **31** (2006) 452-455.

[70] Eudes Lorençon et al. Direct production of carbon nanotubes/metal nanoparticles hybrids from a redox reaction bettween metal ions and reduced carbon nanotubes. Applied Materials & Interfaces Vol **1** No10 (2009) 2104-2106.

[71] Li, Y-H. et al. Cu/single-walled carbon nanotube laminate composites fabricated by cold rolling and annealing. Nanotechnology **18** (2007) 205607.

[72] Morisada, Y, et al. MWCNTs/AZ31 surface composites fabricated by friction stir processing. Materials Science and Engineering A **419** (2006) 344-348.

[73] P. Quang et al. Consolidation of 1vol.% carbon nanotube reinforced metal matrix nanocompósitos via equal channel angular pressing. Journal of Materials Processing **187-188** (2007) 318-320.
[74] Uddin. SM et al Thermal expansion coefficient of nanotube metal composites. Physiscs Status Solidi B **246**,11-12 (2009): 2836-9
[75] H.L. Zhuang et al. Interactions between transition metals and defective carbon nanotubes. Computational Materials Science **43** (2008) 823-828
[76] Hua-Qiang Wu. Preparation of Fe-Ni alloy nanoparticles inside carbon nanotubes via wet chemistry. Jourmal of Materials Chemistry **12** (2002) 1919-1921.
[77] P.Ayala et al. Decorating carbon nanotubes with nanostructured nickel particles via chemical methods. Chemical Physics Letters **431** (2006) 104-109.
[78] Jean Phippe Tessonnier et al. Selective deposition of metal nanoparticles inside or outside multiwalled carbon nanotubes. AcsNano Vol **3** No 8 (2009) 2081-2089.
[79] Yah-Hui Li et al. Adsorption of cadmiun (II) from aqueous solution by surface oxidized carbon nanotubes. Carbon **41** (2003) 1057-1062.
[80] Chungsying Lu et al. Removal of Zinc (II) aqueous solution by purified carbon nanotubes: kinetics and equilibrium studies. Ind. Eng. Chem. Res. **45** (2006) 2850-2855.
[81] Yan-Hui Li et al. Adsorption thermodynamic, kinetic and desorption studies of Pb 2+ on carbon nanotubes. Water research **39** (2005) 605-609.
[82] Chungsying Lu and Chunti Liu Removal of nickel (II) from aqueous solution by carbon nanotubes. Journal Chemical technology Biotechnology **81** (2006) 1932-1940.
[83] Guodong Sheng et al. Adsorption of copper (II) on multiwalled carbon nanotubes in the abscence and prescence of humic or fulvic acids. Journal of Harzardous Materials **178** (2010) 333-340.
[84] Gadupudi Purnachadra Rao et al. Sorption of divalent metal ions from aqueous solution by carbon nanotubes: A review. Separation and Purification Technology **58** (2007) 224-231.
[85] Junping Hu et al. Efficient method to functionalize carbon nanotubes with thiol groups and fabricate gold nanocomposites. Chemical Physiscs Letters **401** (2005) 352-356.
[86] Keith B. Male et al. Electrochemical detection of carbohydrates using copper nanoparticles and carbon nanotubes. Analytica Chemica Acta **516** (2004) 35-41.
[87] Motta, Marcelo. Síntesse por redução in-situ e caracterização microestrutural dos nano-compósitos de Cu-Al_2O_3 e Ni-Al_2O_3. Tese de doutorado. PUC-Rio.103p, 2002.
[88] Ch. Caillier et al. Probing high-pressure properties of single-wall carbon nanotubes through fullerene encapsulation. Physical review B**77** (2008) 125418.
[89] A. Merlen et al. High pressure-high temperature synthesis of diamond from single-wall pristine and iodine doped carbon nanotubes bundles. Carbon **47** (2009) 1643-1651.
[90] Corrias, M. et al. High purity multiwalled carbon nanotubes under high pressure and high temperature. Carbon 101-38 (2003) 699-792

[91] Copper powder consolidation techniques. Compaction, Solid state sintering, liquid phase sintering. Disponível em: http://www.copper.org Acessado em 5/10/2011

[92] D.Fuks et al. Carbon in copper and silver: diffusion and mechanical properties. Journal of Molecular Structure **539** (2001) 199-214.

[93] ASM Metals Handbook. Alloys phase diagrams Volume 3, 1992.

[94] Chen, W.X. et al. Tribological application of carbon nanotubes in a metal-based composite coating and composites. Carbon **41** (2003) 215-222.

[95] Yi Feng et al. Fabrication and properties of silver-matrix composites reinforced by carbon nanotubes. Materials Characterization **55** (2005) 211-218

[96] I. Sridhar, Karthic R. Narayanan. Processing and characterization of MWCNT reinforced aluminum matrix nanocomposites. Journal of Materials Science **44** (2009) 1750-1756.

[97] Lijie Ci et al. Investigation of the interfacial reaction between multi-walled carbon nanotubes and aluminum. Acta Materialia **54** (2006) 5367-5375.

[98] Roberto Orrù et al. Consolidation/synthesis of materials by electric current activated/assisted sintering. Materials Science and Engineering R **63** (2009) 127–287.

[99] Mamedov, V. Spark plasma sintering as advanced PM sintering method. Powder Metallurgy Vol. **45**, Num 4, (2002) 322-328.

[100] Z. Song, S. Kishimoto, N. Shinya. A Novel Pulse-Current-Assisted Sintering Method for Fabrication of Metallic Cellular Structures Adv. Eng. Mater. **6** (2004) 211-214.

[101] S. Diouf , A. Molinari. Densification Mechanisms in spark plasma sintering: Effect of particle size and pressure. Powder Technology (2012). DOI 10.1016

[102] Zhang Zhaouhi et al. Sintering mechanism of large-scale ultrafine-grained copper prepared by SPS method. Materials Letters **62** (2008) 3987-3990.

[103] Feng Xue et al. Preparation and elevated temperature compressive properties of multi-walled carbon nanotube reinforced Ti composites. Materials Science and Engineering A **527** (2010) 1586-1589.

[104] Jin-zhi Liao et al. Spark plasma sintered multi-wall carbon nanotube reinforced aluminum matrix composites. Materials and desing **31** (2010) S96-S100.

[105] Esawi AMKet al Fabrication and properties of dispersed carbon nanotube-aluminium composites. Materials Science and Engineering A **508** (2009) 167- 173.

[106] H. Kwon et al Investigation of carbon nanotube reinforced aluminum matrix composite materials. Composites Science and Technology **70** (2010) 546-550.

[107] K.T. Kim et al. Microstructures and tensile behavior of carbon nanotube reinforced Cu matrix nanocomposites. Material Science and Engieneering A **430** (2006) 27-33.

[108] CHA, S.I. et al. Extraordinary strenghthening effect of CNT in metal-matrix nanocomposites by MLM. Advanced Materials **17** (2005) 1377-1381.

[109] M.E. Mendoza, I.G. Solórzano, E.A. Brocchi. Mechanical and electrical characterization of Cu-2 wt.% SWCNT nanocomposites synthesized by in situ reduction. Materials Science and Engineering A (2012) DOI 10.1016/j.msea.2012.02.052

[110] D. Williams & C.Barry Carter. Transmission electron microscopy. Second edition. Springer Edition. New York, 2009.

[111] Jeol 2100. Operation Manual Manual Transmission electron microscopy. Japan, 2004.

[112] S.D. Findlay et al. Annular Bright Field Scanning Transmission Electron Microscopy Imaging Dynamics. Microsc. Microanal. 16 (Suppl 2), 2010, doi:10.1017/S143192761005484X

[113] Ryk Brydson. Electron energy loss spectroscopy. Editora Taylor & Francis Group. London and New York, 2001.

[114] Kim, I.Y et al. Friction and wear characteristics of the carbon nanotube-aluminum composites with different manufacturing conditions. Wear **267** (2009) 593-598.

[115] Oliver, W.C., and G.M. Pharr. An improved technique for determining hardness and elastic modulus using load and displacement sensing indentation experiments. Journal of Materials Research **7** (1992) 1564-1583.

[116] Rzepiejewska-Malyska, K.A et al In situ mechanical observations during nanoindentation inside a high-resolution scanning electron microscope. Journal of Materials Research **23** (2008) 1973-1979

[117] C-Y. Kuo, et al. Water purification of removal aqueous copper (II) by as-grown and modified carbon nanotubes. Desalination 249 (2009) 781-785.

[118] www.crystallographyopentadabase.com Acessado em 3/03/2012)

[119] Terence Allen. Surface area and pore size determination. Fifth edition, volume 2. Chapman & Hall Editors, London 1997

[120] S.J. Gregg and K.S.W. Sing, Adsorption, Surface Area and Porosity, Academic Press, London and New York, ISBN 0-12-300956-1, 1982.

[121] Blanchard NP et al. Tuning the work function of surface oxidized multi-wall carbon nanotubes via cátion Exchange. Chemical Physisc Letters **434** (2007) 92-95

[122] Zhenyu Sun, Zi Li et al. Ultrasonication assisted decoration of CNT by various particles with controlled size and loading. Carbon **49** (2011) 4376-4384.

[123] B. J. Kim et al. Kinetics of individual nucleation events observed in nanoscale vapor-liquid-solid growth. Science 322 (2008) 1070-1073.

[124] Zhenyu Sun et al. Ultrasonication-assisted uniform decoration of carbon nanotubes by various particles with controlled size and loading. Carbon **49** (2011) 4376-4384.

[125] P. Wang et al. Preparation of Cu nanoparticles on carbon nanotubes by solution infusion method and calcining in ambient atmosphere. Materials Letters **61** (2007) 5255-5257.

[126] (Xiaoyan et al. Dislocation nucleation governed softening and maximum strength in nano-twinned metals. Nature Letters vol **464** (2010) 4p dói: 10.138/nature08929

[127] D. Vandick Advancing HRTEM and HRSTEM. Procedings IMC-17. Brazil, 2010.

[128] C.C Ahn and O.L Krivanek. EELS Atlas. A reference guide of electron energy loss spectra covering all stable elements. Gatan, Arizona USA, 1983.

[129] Ch. Guiderdoni et al. The preparation of Double-walled carbon nanotube /Cu composites by spark plasma sintering and their hardness and friction properties. Carbon **49** (2011) 4535-4543.

[130] D. Fuks Carbon in copper and silver: diffusion and mechanical properties. Journal of Molecular Structure (Theochem) **539** (2001) 199-214.

[131] Simon Dorfman, David Fuks. Formation and relative stability of interstitial solid solutions at interfaces in metal matrix composites. Materials & Design, Vol. **18** Nos. 4r6 (1997) 333-337

[132] Suo, Z. Reliability of InterConnect structures, 265-324 in volume 8, W. Yang Editors) Comprehensive Structural Integrity. Elsevier Amsterdam, 2003.

[133] Hansang, Kwon et al. Investigation of CNT reinforced aluminium matrix composite materials. Composite Science and Technology **70** (2010) 546-550.

[134] Ulbrand, M et al. Thermomechanical properties of Cu –CNT composites prepared by SPS. Composites Science and Technology **70** (2010) 2263-2268.

[135] R. George et al. Strengthening in carbon nanotube/aluminium (CNT/Al) composites. Scripta Materalia **53** (2005) 1159-1163.

[136] Lei, Lu et al. Ultra high strenght and hingh electrical conductivity in copper. Science vol 34, p. 422-426, 2004.