

References

1. B. Zhang, Physical Fundamentals of Nanomaterials, William Andrew,Chemical Industry Press, U.K., 2018.
2. G. Guisbiers, S. Mejí'a-Rosales, D.F. Leonard, "Nanomaterial properties: size and shape dependencies", *J. Nanomater.*, **2012** (2012) 1–2.
3. A.J. Lecloux, "Discussion about the use of the volume-specific surface area (VSSA) as criteria to identify nanomaterials according to the EU definition First part: theoretical approach", *Jour. of Nanoparticle Research*, **17** (2105).
4. T. Edvinsson, "Optical quantum confinement and photocatalytic properties in two-, one- and zero-dimensional nanostructures", *R. Soc. open sci.*, **5**(2018) 180387.
5. J. Wu, S. Chen, A. Seeds, H. Liu, "Quantum dot optoelectronic devices: lasers, photodetectors and solar cells", *J. Phys. D: Appl. Phys.* **48**(2015)363001.
6. C. Biswas, Y. H. Lee, "Graphene Versus Carbon Nanotubes in Electronic Devices", **21**(2011) 3806-3826.
7. M.S. Dresselhaus, G. Dresselhaus, P. Avouris, "Carbon nanotubes: synthesis, structures, properties and applications", *Topics in Applied Physics.*, Ph., eds., Berlin, **80**(2001).
8. Juan L. Delgado, Salvatore Filippone, Francesco Giacalone, Ma Ángeles Herranz, Beatriz Illescas, Emilio M. Pérez, Nazario Martín, "Buckyballs", *Polyarenes II*, Springer International Publishing, 2014.
9. A. G. Nasibulin, P.V. Pikhitsa, H. Jiang, D.P. Brown, A.V. Krasheninnikov, A. S. Anisimov, P. Queipo, A. Moisala, D. Gonzalez, G. N. Lientschnig, A. Hassanien, S.D. Shandakov, G. Lolli , D. E. Resasco , M. Choi , D. Toma' Nek, E. I. Kauppinen, "A novel hybrid carbon material", *Nature Nanotechnology*, **2**(2007)156–161.
10. M. Endo, H. W. Kroto, "Formation of Carbon Nanofibers", *J. Phys. Chem.* , **96**(1992) 6941–6944.
11. R.J. Lagow, J.J. Kampa, H.-C. Weiscott, L. Battle, J. W. Genge, D.A. Laude, C.J. Harper, R. Bau, R.C. Stevens, E. Munson, "Synthesis of Linear Acetylenic Carbon: The "sp" Carbon Allotrope", *Science*, **267**(1995) 362-367.
12. L.Shi, P. Rohringer, K. Suenaga, Y. Niimi, J. Kotakoski, J.C. Meyer, H. Peterlik, M. Wanko, S. Cahangirov, A. Rubio, Z. J. Lapin, L. Novotny, P. Ayala,T. Pichle, "Confined linear carbon chains as a route to bulk carbyne", *Nature Materials*, **15**(2016)634–639.
13. A.V. Rode, S.T. Hyde, E.G. Gamaly, R.G. Elliman, D.R. McKenzie, S. Bulcock, "Structural analysis of a carbon foam formed by high pulse-rate laser

References

- ablation", Applied Physics A: Materials Science & Processing, **69**(1999) S755–S758.
14. Clifford Frondel, Ursula B. Marvin, "Lonsdaleite, a new hexagonal polymorph of diamond", Nature, **214** (1967) 587–589.
 15. J. D. Bernal, "The structure of graphite", Proc. Roy. Soc. A,**106** (1924) 749.
 16. D.D.L. Chung, " Applications of sub-micron diameter carbon filaments" Composite Materials Research Laboratory, State University of New York at Buffalo, 2001.
 17. W. H. Bragg, W. Lawrence, "The structure of the diamond", Proc. Roy. Soc. A, **89**(1913).
 18. H. He, T. Sekine, T. Kobayashi, "Direct transformation of cubic diamond to hexagonal diamond", Appl. Phys. Lett., **81**(2002)610–612.
 19. E.Field, C.S.J.Pickle, "Strength, fracture and friction properties of diamond", Diamond and Related Materials, **5**(1996) 625-634.
 20. J.C. Angus, C. C. Hayman, "Low-Pressure, Metastable Growth of Diamond and "Diamondlike" Phases", Science, **241** (1988) 913.
 21. J. Walke, "Optical absorption and luminescence in diamond", Rep. Prog. Phys. ,**42**(1979) 1605.
 22. M.W. Geis, "Summary Abstract: Device applications of diamonds", J. Vac. Sci. Technol. A, **6** (1988) 1953.
 23. L.Tang, C. Tsai, W.W. Gerberich, L. Kruckeberg, D.R. Kania, "Biocompatibility of chemical-vapour-deposited diamond", Biomaterials, **16**(1995)483-488.
 24. H.W. Kroto, J.R. Heath, S.C. O'Brien, R.F. Curl, R.E. Smalley, "C₆₀: Buckminsterfullerene", Nature, **318**(1985).
 25. R. C. Haddon, A. S. Perel, R. C. Morris, T. T. M. Palstra, A. F. Hebard and R. M. Fleming, " C₆₀ thin film transistors", Appl. Phys. Lett., **67**(1995).
 26. P.-M. Allemand, K. C. Khemani, A. Koch, F. Wudl, K. Holczer, S. Donovan, G. Gruner and J. D. Thompson, Science, "Organic molecular soft ferromagnetism in a fullerene c60", Science, **253**(1991)301–303.
 27. A. F. Hebard, M. J. Rosseinsky, R. C. Haddon, D. W. Murphy, S. H. Glarum, T. T. M. Palstra, A. P. Ramirez & A. R. Kortan, "Superconductivity at 18 K in potassium-doped C₆₀", Nature, **350**(1991) 6319
 28. S. Iijima, "Helical microtubules of graphitic carbon", Nature, **354**(1991)56–58.
 29. S. Iijima, T. Ichihashi , "Single-shell carbon nanotubes of 1-nm diameter", Nature , **363**(1993) 603–605 .

References

30. E.T. Thostenson, Z. Ren, T.-W. Chou, “ Advances in the science and technology of carbon nanotubes and their composites: a review”, Composites Science and Technology, **61**(2001)1899-1912.
31. M.S. Dresselhaus, G. Dresselhaus, P.C. Eklund, “Science of fullerenes and carbon nanotubes”, Academic Press, San Diego ,1996.
32. O. Zhou, R. M. Fleming, D. W. Murphy, C. H. Chen, R. C. Haddon, A. P. Ramirez, S. H. Glarum, “Defects in Carbon Nanostructures”, Science, **263**(1994) 1744-1747.
33. W. Ruland, A.K. Schaper, H. Hou, A. Greiner, “Multi-wall carbon nanotubes with uniform chirality: evidence for scroll structures”, Carbon **41**(2003) 423-427.
34. J.C. Slonczewski, P.R. Weiss, “Band structure of graphite”, Phys.Rev. **109**(1958)272.
35. Y.B. Zhang, Y.W. Tan, H.L. Stormer, P. Kim, “Experimental observation of the quantum Hall effect and Berry’s phase in graphene”, Nature **438**(2005) 201.
36. K.S. Novoselov, Z. Jiang, Y. Zhangs. V. Morozov, H. L. Stormer, U Zeitler, J. C. Maang. S. Boebinger, P. Kim, A. K. Geim, “ Room-temperature quantum Hall effect in graphene”, Science, **315**(2007)1379.
37. K.S. Novoselov, A.K. Geim, S.V. Morozov, D. Jiang, Y. Zhang, I.V. Grigorieva, S. V. Dubonos A. A. Firsov, “Electric field effect in atomically thin carbon films”, Science, **306**(2004)666-669.
38. A. A. Bdin, S. Ghosh, W. Bao, I. Calizo, D. Teweldebrhan, F.Miao, C.N. Lau, “ Superior thermal conductivity of single-layer graphene” Nano Lett., **8**(2008)902-907.
39. C. Lee X. Wei, J. W. Kysar, J. Hone, “Measurement of the elastic properties and intrinsic strength of monolayer graphene”, Science, **321**(2008)385-388.
40. H. P. Boehm, R. Setton and E. Stump, “Nomenclature and terminology of graphite intercalation compounds (IUPAC Recommendations 1994)”, Pure and Applied Chemistry,**66**(2009).
41. A.R. Ubbelohde, L.A. Lewis, “Graphite and its crystal compounds”, Oxford University, London: Press, 1960.
42. T.E. Thompson, E.R. Falardeau, L.R. Hanlon, “The electrical conductivity and optical reflectance of graphite–SbF₅ compounds”, Carbon **15**(1977)39-43.
43. H. Fuzellier, J. Melin, A. Herold, “Conductibilité électrique des composés lamellaires graphite–SbF₅ et graphite–SbCl₅”, Carbon **15**(1977)45-46.

References

44. Y. Zhu, S. Murali, W. Cai, X. Li, J. W. Suk, J.R. Potts, R. S. Ruoff, “Correction: Graphene and Graphene Oxide: Synthesis, Properties, and Applications”, *Adv. Mater.*, **22**(2010) 3906–3924.
45. L.M. Malarda, M.A. Pimenta, G. Dresselhaus, M.S. Dresselhaus, “Raman spectroscopy in graphene”, *Physics Reports*, **43**(2009)51–87.
46. A. Fasolino, J. H. Los, M. I. Katsnelson, “ Intrinsic ripples in graphene”, *Nature Materials*, **6**(2007) 858–861.
47. T. V. Hughes, C. R. Chambers, “Manufacture of Carbon Filaments”, US Patent No. 405, 1889, 480.
48. P. Morgan, “Carbon Fibers and Their Composites”, Taylor & Francis Group, CRC Press, Boca Raton, FL, 2005.
49. P. Serp, M. Corrias, P. Kalck, “Carbon nanotubes and nanofibers in catalysis”, *Appl. Catal., A*, **253**(2003) 337–358.
50. V. Vamvakaki, K. Tsagaraki, N. Chaniotakis, “Carbon Nanofiber-Based Glucose Biosensor”, *Anal. Chem.*, **78**(2006) 5538–5542.
51. S.-U. Kim and K.-H. Lee, “Carbon nanofiber composites for the electrodes of electrochemical capacitors”, *Chem. Phys. Lett.*, **400**(2004)253–257.
52. V. Barranco, M. A. Lillo-Rodenas, A. Linares-Solano, A. Oya, F. Pico, J. Ibañez, F. Agullo-Rueda, J. M. Amarilla, and J. M. Rojo Nanofi “Amorphous Carbon Nanofibers and Their Activated Carbon Nanofibers as Supercapacitor Electrodes”, *J. Phys. Chem. C*,**114**(2010) 10302–10307.
53. Yoong A. Kim, T. Hayashi, M. Endo, M. S. Dresselhaus, “Carbon Nanofibers”, Springer, Berlin, Heidelberg,2013, 233–262.
54. Roger Bacon, “Growth, Structure, and Properties of Graphite Whiskers”, *Journal of Applied Physics*,**31**(1960) 283.
55. L.M. Viculis, Julia J. Mack, R. B. Kaner, “A Chemical Route to Carbon Nanoscrolls”, *Science*, **299**(2003) NO. 5611.
56. A. Peigney, C. Laurent, E. Flahaut, R. R. Bacsa, A. Rousset, “Specific surface area of carbon nanotubes and bundles of carbon nanotubes”, *Carbon* **39**(2001)507-514.
57. G. Mpourmpakis, E. Tylianakis, G. Froudakis, “Pillared Graphene: A New 3-D Network Nanostructure for Enhanced Hydrogen Storage”, *Nano Lett.* **8**(2008) 3166–3170.
58. V. Colucci, S. Braga, R. Baughman, D. Galvao, “ Prediction of the hydrogen storage capacity of carbon nanoscrolls”, *Phys. Rev. B*, **75**(2007) 125404.

References

59. F. P. Bundy, H. T. Hall, H. M. Strong, R. H. Wentorf, "Man-Made diamonds," *Nature*, **176**(1955) 51–55.
60. N. R. Greiner, D. S. Phillips, J. D. Johnson, and F. Volk, "Diamonds in detonation soot," *Nature*, **333**(1988)440–442.
61. X. Wu, W. Fu, H. Chen, "Conductive Polymers for Flexible and Stretchable Organic Optoelectronic Applications", *ACS Appl. Polym. Mater.*,**4**(2022)4609–4623.
62. F. So, "Organic electronics: materials, processing, devices and applications", CRC, New York, 2009.
63. Y.Wang, Y. Ding, X. Guo, G. Yu, "Conductive polymers for stretchable supercapacitors", *Nano Research*, **12**(2019) 1978–1987
64. D.M. Welsh, L.J. Kloeppner, L.Madrigal, M. R. Pinto, B.C. Thompson, K.S. Schanze, K.A. Abboud, D.Powell, J.R. Reynolds, "Regiosymmetric Dibutyl-Substituted Poly(3,4-propylenedioxythiophene)s as Highly Electron-Rich Electroactive and Luminescent Polymers", *Macromolecules*,**35**(2002)6517–6525.
65. R. C. Hiorns, R. de Bettignies, J. Leroy ,S. Bailly, M. Firon, C. Sentein, A. Khoukh, H. Preud'homme, C. Dagron-Lartigau, "High Molecular Weights, Polydispersities, and Annealing Temperatures in the Optimization of Bulk-Heterojunction Photovoltaic Cells Based on Poly(3-hexylthiophene) or Poly(3-butyl thiophene)", *Adv. Func. Mater.*, **16**(2006)2263-2273.
66. D. H. Kim, Y. D. Park,Y. Jang, H. Yang, Y. H. Kim, J. I. Han, D. G. Moon, S. Park, T. Chang, C. Chang, M. Joo, C. Y. Ryu, K. Cho, "Enhancement of Field-Effect Mobility Due to Surface-Mediated Molecular Ordering in Regioregular Polythiophene Thin Film Transistors", *15*(2005) 77-82.
67. J.-H. Cho, J.-B. Yu, J.S. Kim, S. Sohn, D.-D. Lee, J. Huh, "Sensing behaviours of polypyrrole sensor under humidity condition" *Sensor and Actuator B: Chemical*, **108**(205) 389-392.
68. S.A. Waghuley, S.M. Yenorkar, S.S. Yawale, S.P. Yawale, "Application of chemically synthesized conducting polymer-polypyrrole as a carbon dioxide gas sensor" *Sensors and Actuators B: Chemical*, **128**(2008)366-373.
69. M. Gerard, A. Chaubey, B.D. Malhotra, "Application of conducting polymers to biosensors", *Biosen. and Bioelect.*, **17**(2002) 345-359.
70. I. Sultanaa, Md. Mokhlesur, R. Jiazhao, W.Caiyun, W.Gordon, G.Wallace, Hua-KunLiu "All-polymer battery system based on polypyrrole (PPy)/para (toluene sulfonic acid) (pTS) and polypyrrole (PPy)/indigo carmine (IC) free-standing films", *Electrochimica Acta*, **83**(2012)209-215.

References

71. H.N. Thi Lea, B. Garciaa, C. Deslouisa, Q. Le Xuan, “Corrosion protection and conducting polymers: polypyrrole films on iron”, *Electrochimica Acta*, **46**(2001)4259-4272.
72. Zai Yu, Han Yan, Kun Lu, Yajie Zhang, Zhixiang Wei, “Self-assembly of two-dimensional nanostructures of linear regioregular poly(3-hexylthiophene)”, *RSC Adv.*, **2**(2012)338-343
73. R. K. Pandey, A.S.M. Tripathi, S.S. Pandey, R. Prakash, “ Optoelectrical anisotropy in graphene oxide supported polythiophene thin films fabricated by floating film transfer”, *Carbon*, **147**(2019)252-261.
74. Z. Zhua, J. Wang, B. Wei, “Self-assembly of ordered poly(3-hexylthiophene) nanowires for organic field-effect transistor applications”, *Physica E: Low-dimensional Systems and Nanostructures*, **59**(2014) 83-87.
75. E. Lim, B.-J. Jung, J. Lee, H.-K. Shim, J.-Ik Lee,Y.S. Yang, L.-M. Do, “ Thin-Film Morphologies and Solution-Processable Field-Effect Transistor Behavior of a Fluorene-Thieno[3,2-b] thiophene-Based Conjugated Copolymer”, *Macromolecules*, **10**(2005)4531–4535.
76. K. Namsheer, C.S. Rout, “Conducting polymers: a comprehensive review on recent advances in synthesis, properties and applications”, *RSC Adv.*, **11**(2021)5659-5697.
77. A. Moliton, R.C Hiorns, “Featured Article Review of electronic and optical properties of semiconducting π -conjugated polymers: applications in optoelectronics”, *53*(2004)1397-1412.
78. R. L. Greene, G. B. Street, L. J. Suter, “Superconductivity in Polysulfur Nitride”, *Phys. Rev. Lett.*, **34**(1975)577.
79. H. Hirakawa, E.J. Louis, A.L . Macdiarmid, C.K. Chiang, A.J. Heeger, “Synthesis of Electrically Conducting Organic Polymers: Halogen Derivatives of Polyacetylene, (CH)”, *J. Chem. Soc., Chem. Commun.*, (1977) 578-580.
80. C. K. Chiang, M. A. Druy, S. C. Gau, A. J. Heeger,E. J. Louis, A. G. MacDiarmid, Y. W. Park, H. Shiraka, “ Synthesis of Highly Conducting Films of Derivatives of Polyacetylene, (CH)”, *J. Am. Chem. Soc.*, **100**(1978) 1013–1015.
81. Alan G. MacDiarmid, “Nobel Lecture: “Synthetic metals”: A novel role for organic polymers”, *Rev. Mod. Phys.*,**73**(2001) 701.
82. T.P. Kaloni, P.K. Giesbrecht, G. Schreckenbach, M. S. Freund, “Polythiophene: From Fundamental Perspectives to Applications”, *Chem. Mater.*, **29**(2017)10248–10283.
83. J.L. Bredas, G.B. Street, “Polarons, Bipolarons, and Solitons in Conducting Polymers”, *Acc. Chem. Res.*,**18**(1985) 309–315.

References

84. J. L. Brédas, B. Thémans, J. G. Fripiat, J. M. André, and R. R. Chance, “Highly conducting poly para phenylene, polypyrrole, and polythiophene chains: An *ab initio* study of the geometry and electronic-structure modifications upon doping”, Phys. Rev. B, Condens. Matter, **29**(1984), 6761.
85. J.W. Lin, “Synthesis and properties of poly (2, 5 thiénylene)”, J. Polym. Sci. , **18**(1980)2869-2873.
86. Y. Li, R. Qian, “Stability of conducting polymers from the electrochemical point of view” Synth. Metals, **53**(1993)149-154.
87. C. Lungenschmied, G. Dennler, H. Neugebauer, S.N. Sariciftci, M. Glatthaar, T. Meyer, A. Meyer, “Flexible, long-lived, large-area, organic solar cells”, Solar Energy Materials and Solar Cells, **91**(2007)379-384.
88. S. Nagamatsu, W. Takashima, K. Kaneto, Y. Yoshida, N. Tanigaki, K. Yase, K. Omote, “Backbone Arrangement in “Friction-Transferred” Regioregular Poly(3-alkyl thiophene)s”, Macromolecules, **36**(2003)5252–5257.
89. L. H. Jimison, A. Salleo, M.L. Chabinyc, D.P. Bernstein,M. F. Toney, “Correlating the microstructure of thin films of poly[5,5-bis(3-dodecyl-2-thienyl)-2,2-bithiophene] with charge transport: Effect of dielectric surface energy and thermal annealing”, Phys. Rev. **B**, **78**(2008), 125319.
90. S. Hotta, “Electrochemical synthesis and spectroscopic study of poly (3- alkyl thiénylenes)”, Synth. Metals, **22**(1987) 103-113.
91. M. C. Gurau, D. M. Delongchamp, B. M. Vogel, E. K. Lin, D. A. Fischer, S. Sambasivan L. J. Richter, “Measuring molecular order in Poly(3-alkyl thiophene) thin films with polarizing spectroscopies”, Langmuir, **23**(2007) 834-842.
92. J. M. Hancock, A. P Gifford, R. D. Champion, S. A. Jenekhe, “Block Co-oligomers for organic electronics and optoelectronics: Synthesis, Photophysics, Electroluminescence, and Field-effect charge transport of oligothiophene-b-oligoquinoline-b-oligothiophene Triblock Co-oligomers” Macromolecules, **41**(2008) 3588-3597.
93. M. Brinkmann, P. Rannou, “Effect of molecular weight on the structure and morphology of oriented thin films of regioregular poly (3 hexyl thiophene) grown by directional epitaxial solidification” Adv. Funct. Mater., **17**(2007) 101-108.
94. S.T. Salammal, “Structural and morphological investigations of Poly(3-alkyl thiophene) thin films prepared by low and room temperature casting and spin coating techniques”, Dissertation, Siegen, 2012.
95. H. Sirringhaus, R.J. Wilson, R.H. Friend, M. Inbasekaran, W. Wu, E. P. Woo, M. Grell, and D. D. C. Bradley, “Mobility enhancement in conjugated polymer field-effect transistors through chain alignment in a liquid-crystalline phase”, Appl. Phys. Lett., **77**(2000) 406-408.

References

96. L. H. Jimison, A. Salleo, M. L. Chabiny, D. P. Bernstein, M. F. Toney, “Correlating the microstructure of thin films of poly [5, 5-bis (3- dodecyl-2-thienyl)-2, 2-bithiophene] with charge transport: Effect of dielectric surface energy and thermal annealing”, *Phy. Review. B*, **78**(2008)125319-18.
97. I. A. Liversedge, S. J. Higgins, M. Giles, M. Heeney, I. McCulloch, “Suzuki route to regioregular poly alkyl thiophenes using Ir-catalysed borylation to make the monomer, and Pd complexes of bulky phosphanes as coupling catalysts for polymerisation”, *Tett.Lett.*, **47**(2006)5143.
98. R.S. Loewe, P.C. Ewbank, J. Liu, L. Zhai, R. D. McCullough, “Regioregular, Head-to-Tail Coupled Poly(3-alkyl thiophenes) Made Easy by the GRIM Method: Investigation of the Reaction and the Origin of Regioselectivity”, *Macromolecules*, **34**(2001) 4324–4333.
99. M. S. A. Abdou, F. P. Orfino, Y. Son, S. Holdcroft, “ Interaction of Oxygen with Conjugated Polymers: Charge Transfer Complex Formation with Poly(3-alkyl thiophene)”, *J. Am. Chem. Soc.* ,**119**(1997)4518.
100. R. J. Kline, D. M. DeLongchamp, D. A. Fischer, E. K. Lin, L. J. Richter, M. L. Chabiny, M. F. Toney, M. Heeney, I. McCulloch, “Critical Role of Side-Chain Attachment Density on the Order and Device Performance of Polythiophenes”, *Macromolecule*, **40**(2007)7960.
101. A. L. Briseno, S.C. B. Mannsfeld, P.J. Shamberger, F.S. Ohuchi, Z. Bao, S.A. Jenekhe, Y. Xi, “Self-Assembly, Molecular Packing, and Electron Transport in n-Type Polymer Semiconductor Nanobelts”, *Chem. Mater.*, **20**(2008) 4712–4719.
102. C. Zhu, Zi-Hao Guo, A.U. Mu, Y. Liu, S. E. Wheeler, L. Fang, “Low Band Gap Coplanar Conjugated Molecules Featuring Dynamic Intramolecular Lewis Acid–Base Coordination”, *J. Org. Chem.*,**81**(2016) 4347–4352.
103. M.L. Chabiny, M. F. Toney, R.J. Kline, I. McCulloch, M. Heeney, “X-ray Scattering Study of Thin Films of Poly(2,5-bis(3-alkylthiophen-2-yl)thieno[3,2-b]thiophene)”, *J. Am. Chem. Soc.*, **129**(2007) 3226–3237.
104. D.M. DeLongchamp, R.J. Kline, E.K. Lin, D.A. Fischer, L.J. Richter, “ High Carrier Mobility Polythiophene Thin Films: Structure Determination by Experiment and Theory”, *Adv. Mat.* , **19**(2007) 833-837.
105. I. McCulloch, C. Bailey, M. Giles, M. Heeney, I. Love, M. Shkunov, D. Sparrowe, S. Tierney, “Influence of Molecular Design on the Field-Effect Transistor Characteristics of Terthiophene Polymers”, *Chem. Mater.* **17**(2005)1381.
106. R.J. Kline, M.D. McGehee, E.N. Kadnikova, J. Liu, J.M.J. Fréchet, “Controlling the Field-Effect Mobility of Regioregular Polythiophene by Changing the Molecular Weight”, *Adv.Mater.* , **15**(2003) 1519.

References

107. A. Zen, J. Pflaum, S. Hirschmann, W. Zhuang, F. Jaiser, U. Asawapirom, J. P. Rabe, U. Scherf, D. Neher, “Effect of Molecular Weight and Annealing of Poly(3-hexylthiophene)s on the Performance of Organic Field-Effect Transistors”, *Adv. Funct. Mater.*, **14**(2004)757.
108. M. Brinkmann, P. Rannou, “Effect of Molecular Weight on the Structure and Morphology of Oriented Thin Films of Regioregular Poly(3-hexylthiophene) Grown by Directional Epitaxial Solidification” *Adv. Funct. Mater.*, **17**(2007)101.
109. R. Hamilton, C. Bailey, W. Duffy, M. Heeney, M. Shkunov, D. Sparrowe, S. Tierney, I. McCulloch The influence of molecular weight on the microstructure and thin film transistor characteristics of pBTTT polymers., *Proc. of SPIE*, **6336**(2006) 633611-1.
110. I. McCulloch, M. Heeney, C. Bailey, K. Genevicius, I. Macdonald, M. Shkunov, D. Sparrow, S. Tierney, R. Wagner, W. Zhang, M. L. Chabinyc, R.J. Kline, M. D. McGehee, M. F. Toney, “Liquid-crystalline semiconducting polymers with high charge-carrier mobility”, *Nature Materials*, **5**(2006) 328–333.
111. K. Hu, D.D. Kulkarni, I. Choi, and V.V. Tsukruk, “Graphene-polymer nanocomposites for structural and functional applications,” *Prog. Polym. Sci.*, **39**(2014)1934–1972.
112. H. Pang, L. Xu, D. X. Yan, and Z. M. Li, “Conductive polymer composites with segregated structures,” *Prog. Polym. Sci.*, **39**(2014)1908–1933.
113. P.C. Ma, N.A. Siddiqui, G. Marom, J.K. Kim, “Dispersion and functionalization of carbon nanotubes for polymer-based nanocomposites: a review”, *Composites A: Appl. Sci. and Manu.*, **41**(2010)1345–67.
114. T. Villmow, S. Pegel, A. John, R. Rentenberger, P. Pötschke, “Liquid sensing: smart polymer/CNT composites” *Mater. Today*, **14**(2011)340–345.
115. R.A. Antunes, M.C.L. Oliveira, C. Ett, “Carbon materials in composite bipolar plates for polymer electrolyte membrane fuel cells: a review of the main challenges to improve electrical performance”, *J. Power Sources*, **196**(2011)2945–61.
116. Z.M. Dang, J.K. Yuan, J.W. Zha, T.Zhou, S.T. Li, G.H. Hu, “Fundamentals, processes and applications of high-permittivity polymer–matrix composites”, *Prog. Mater. Sci.* **57**(2012)660–723
117. W. Bauhofer, J.Z. Kovacs, “A review and analysis of electrical percolation in carbon nanotube polymer composites”, *Compo.Sci. and Technology*, **69**(2009) 1486-1498.
118. S. Xu, O. Rezvanian, K. Peters, M.A. Zikry, “The viability and limitations of percolation theory in modelling the electrical behaviour of carbon nanotube–polymer composites”, *Nanotechnology*, **24**(2013) 155706.

References

119. D. Stauffer, A. Aharony, “Introduction to Percolation Theory” Taylor and Francis, London,1994, p. 192,
120. S. Stankovich, D.A. Dikin, G.H.B. Dommett, K.M. Kohlhaas, E.J. Zimney, E.A. Stach, R.D. Piner, S.T. Nguyen, R.S. Ruoff, “Graphene-based composite materials”, *Nature*, **442** (2006) 282-286
121. H. Deng, L. Lin, M.Z. Ji, S.M. Zhang, M.B. Yang, Q. Fu, “Progress on the morphological control of the conductive network in conductive polymer composites and the use as electroactive multifunctional materials”, *Prog. Polym. Sci.*, **39** (2014) 627-655.
122. H. Scher, R. Zallen, “Critical density in percolation processes”, *J.Chem. Phys.*, **53** (1970) 3759-3761.
123. H. Tang, X.F. Chen, Y.X. Luo, “Electrical and dynamic mechanical behaviour of carbon black filled polymer composites”, *Eur. Polym. J.*, **32** (1996), 963-966.
124. A. Göldel, G. Kasaliwal, P. Pötschke, “Selective localization and migration of multiwalled carbon nanotubes in blends of polycarbonate and poly(styrene-acrylonitrile)”, *Macromol Rapid Commun*, **30** (2008)423-429
125. B.P. Grady, “Recent developments concerning the dispersion of carbon nanotubes in polymers”, *Macromol. Rapid Commun.*, **31** (2010)247-257.
126. T. Kuilla, S. Bhadra, D. Yao, N. H. Kim, S. Bose, J. H. Lee, “ Recent advances in graphene based polymer composites”, *Prog. Polym. Sci.*, **35**(2010) 1350.
127. S. Stankovich, D. A. Dikin, G. H. B. Dommett, K. M. Kohlhaas, E. J.Zimney, E. A. Stach, R. D. Piner, S. T. Nguyen, and R. S. Ruoff, “Graphene-based composite materials”, *Nature*, **442**(2006) 282-6.
128. M.J. Allen, V.C. Tung, R. B. Kaner, “Honeycomb Carbon: A Review of Graphene”, *Chem. Rev.*,**110**(2010)132–145.
129. Y. Wang, G. J. Weng, S. A. Meguid, and A. M. Hamouda, “ A continuum model with a percolation threshold and tunnelling-assisted interfacial conductivity for carbon nanotube-based nanocomposites”, *J. Appl. Phys.*,**115**(2014) 193706.
130. H. Chen, M. B. M€uller, K. J. Gilmore, G. G. Wallace, D. Li, “Mechanically Strong, Electrically Conductive, and Biocompatible Graphene Paper”, *Adv. Mater.*,**20**(2008) 3557.
131. L. He and S. Tjong, “Low percolation threshold of graphene/polymer composites prepared by solvothermal reduction of graphene oxide in the polymer solution”, *Nanoscale Res. Lett.*, **8**(2013)132.
132. V. Singh, D. Joung, L. Zhai, S. Das, S. I. Khondaker, S. Seal, “Graphene-based materials: Past, present and future, *Progress in Materials Science*, **8**(2011)1178-1271.

References

133. S. Lee, W. Lu, "Controlling the number of graphene sheets exfoliated from graphite by designed normal loading and frictional motion", *Jour. of App. Phy.*, **116**(2014)024313.
134. C. Berger, Z. Song, X.Li, X. Wunate, N. Brown, C. Naud, D. Mayou, T. Li, J. Hass, A.L. N. Marchenkov, E. H. Conrad, P. N. First, W.A. De Heer, "Electronic Confinement and Coherence in Patterned Epitaxial Graphene", *Science*, **312**(2006) 1191-1196.
135. W. S. Hummers, R. E. Offerman, "Preparation of Graphitic Oxide", *J. Am. Chem. Soc.*, **80**(1958)1339
136. D. R. Dreyer, S. Park, C. W. Bielawski, R.Ruoff, "The Chemistry of Graphene Oxide", *Chem. Soc. Rev.*, **39**(2010)228–240.
137. A. Lerf, H. He, M. Forster, J. Klinowski, "Structure of Graphite Oxide", Revisited., *J. Phys. Chem. B*, **102**(1998) 4477-4482.
138. F. Pendolino, N. Armata, "Synthesis, Characterization and Models of Graphene Oxide", Springer Briefs in Applied Sciences and Technology, Springer Cham,2017.
139. K. A. Mkhoyan, A. W. Countryman, J. Silcox, D. A. Stewart, G.Eda, C. Mattevi, S. Miller, M. Chhowalla, "Atomic and Electronic Structure of Graphene-Oxide", *Nano Lett.* , **9**(2009)1058–1063.
140. G. Eda, M. Chhowalla, "Chemically Derived Graphene Oxide: Towards Large-Area Thin-Film Electronics and Optoelectronics", *Adv. Mater.*, **22**(2010)2392-2415.
141. S. Pei, H.M. Cheng, "The Reduction of Graphene Oxide", *Carbon*, **50**(2012) 3210–3228.
142. C. Gomez-Navarro, J. C. Meyers, R. S. Sundaram, A. Chuvalin, S. Kurash, M. Burghard, K. Kern, U. Kaizer, "AtomicStructure of Reduced Graphene Oxide", *Nano Lett.*, **10**(2010)1144–1148.
143. A. L. Higginbotham, D. V. Kosynkin, A. Sinitskii, Z. Sun, J. M. Tour, " Lower-Defect Graphene Oxide Nanoribbons from Multiwalled Carbon Nanotubes", *ACS Nano*, **4**(2010) 2059–2069.
144. I. Jung, D.A. Dikin, R. D. Piner, R.S. Ruoff, "Tunable Electrical Conductivity of Individual Graphene Oxide Sheets Reduced at "Low" Temperatures", *Nano Lett.* ,**8**(2008) 4283–4287.
145. C. Gómez-Navarro, R. Thomas Weitz, A.M. Bittner, M.Scolari, A.Mews, M. Burghard, K.Kern, "Electronic Transport Properties of Individual Chemically Reduced Graphene Oxide Sheets", *Nano Lett.*, **9**(2009)2206.
146. S. Coyle, V. F. Curto, F. Benito-Lopez, L.Florea, D.Diamond, "Wearable Bio and Chemical Sensors", *Wearable Sensors, Fundamentals, Implementation and Applications*, (2014) 65-83.

References

147. Camila Pía Canales, “Electrochemical Impedance Spectroscopy and Its Applications”, book: Nanostructured Materials - Classification, Growth, Simulation, Characterization, and Devices, 2021.
148. F.S. Omar, N. Duraisam, K.Ramesh, S.Ramesh, “Conducting polymer and its composite materials based electrochemical sensor for Nicotinamide Adenine Dinucleotide(NADH)”, *Biosensors and Bioelectronics*, **79**(2016) 763-775.
149. R. Sandulescu, M. Tertiş, C. Cristea ,E. Bodoki, “New Materials for the Construction of Electrochemical Biosensors, *Biosensors - Micro and Nanoscale Applications,*” *Biosensors - Micro and Nanoscale Applications*, T. Rinken, Ed., 2015.
150. E. Llobet, “Gas sensors using carbon nanomaterials: A review,” *Sensors and ActuatorsB: Chemical*, **32**(2013)179.
151. P. Kim, L. Shi, A. Majumdar, P. McEuen, “Thermal Transport Measurements of Individual Multiwalled Nanotubes”, *Phys. Rev. Lett.*, **87**(2001)215502.
152. N. Behabtu, C. C. Young, D. E. Tsentalovich, O. Kleinerman, X. Wang, A. W. Ma, E. A. Bengio, R. F. ter Waarbeek, J. J. de Jong , R. E. Hoogerwerf, “Strong, Light, Multifunctional Fibers of Carbon Nanotubes with Ultrahigh Conductivity”, *Science*, **339**(2013)182–186.
153. A.A. Kuznetsov, A.F. Fonseca, R. H. Baughman, A.A. Zakhidov, “Structural Model for Dry-Drawing of Sheets and Yarns from Carbon Nanotube Forests”, *ACS Nano*, **5**(2011)985–993
154. T. Seyller, A. Bostwick, K. V. Emtsev, K. Horn, L. Ley, J. L. McChesney, T. Ohta, J. D. Riley, E. Rotenberg, F. Speck, “Epitaxial graphene, “a new material”, *Physica status solidi*, **245**(2008) 1436.
155. K. S. Kim, Y. Zhao, H. Jang, S. Y. Lee, J. M. Kim, K. S. Kim, J.-H. Ahn, P. Kim,J.-Y.Chi, and B. H. Hong, “Large-scale pattern growth of graphene films for stretchable transparent electrodes,” *Nature*, **457**(2009).
156. S. Park, R.S. Ruoff, “Chemical methods for the production of graphenes,” *Nature Nanotechnology*, **4**(2009)217
157. M. Pumera, A. Ambrosi, A. Bonanni, E. L. K. Chng, H. L. Poh, “Graphene for electrochemical sensing and biosensing,” *Trends in Analytical Chemistry*, **29**(2010)954.
158. V. Georgakilas, M.Otyepka, A. B. Bourlinos, V.Chandra, N.Kim, K.C. Kemp, P. Hobza, R. Zboril, K. S. Kim, “Functionalization of Graphene: Covalent and Non-Covalent Approaches, Derivatives and Applications” *Chem. Rev.*, **112**(2012)6156–6214.
159. M. M. Titirici, A. Thomas, S.-H. Yu, J.-O. Müller, M. Antonietti, “A Direct Synthesis of Mesoporous Carbons with Bicontinuous Pore Morphology from Crude

References

- Plant Material by Hydrothermal Carbonization,” Chemistry of Materials, **19**(2007)4205.
160. G. Hegde, A. Manaf, S. A., A. Kumar, G. A. M. Ali, K. F. Chong, Z. Ngaini, K. V. Sharma, “Biowaste Sago Bark Based Catalyst Free Carbon Nanospheres: Waste to Wealth Approach,” ACS Sustainable Chemistry & Engineering, **3**(2015)2247.
161. S. Supriya, G. Sriram, Z. Ngaini, C. Kavitha, M. Kurkuri, I. P. De Padova, and G. Hegde, “The Role of Temperature on Physical–Chemical Properties of Green Synthesized Porous Carbon Nanoparticles,” Waste and Biomass Valorization, **11**(2020)3821–3831.
162. S. Supriya, A. Divyashree, S. Yallappa, and G. Hegde, “Carbon nanospheres obtained from the carbonization of bio-resource: A catalyst-free synthesis,” Materials Today: Proceedings, **5**(2018)2907.
163. L. Zhang, Z. Liu, G. Cui and L. Chen, “Biomass-derived materials for electrochemical energy storages”, Prog. Polym. Sci., **43**(2015)136–164 .
164. A. M. Abioye and F. N. Ani, Renewable Sustainable Energy Rev., **52**(2015)1282–1293.
165. Y. Matsumura, M. Sasaki, K. Okuda, S. Takami, S. Ohara, M. Umetsu , T. Adschiri, “Supercritical Water Treatment Of Biomass For Energy And Material Recovery”, Combust. Sci. Technol., **178**(2006)509–536.
166. X. Liao, C. Chen, Z. Wang, R. Wan, C.-H. Chang, X. Zhang, S. Xie, “Changes of biomass and bacterial communities in biological activated carbon filters for drinking water treatment” Process Biochem., **48**(2013)312–316.
167. J. Serafin, U. Narkiewicz, A. W. Morawski, R. J. Wróbel, B. Michalkiewicz, “Highly microporous activated carbons from biomass for CO₂ capture and effective micropores at different conditions”, Jour. of CO₂ Utilization, **18**(2017)73-79.
168. S. Balou, S. E. Babak, A. Priye, “Synergistic Effect of Nitrogen Doping and Ultra-Microporosity on the Performance of Biomass and Microalgae-Derived Activated Carbons for CO₂ Capture”, ACS Appl. Mater. Interfaces, **38**(2020)42711–42722.
169. N. Rey-Raab, L.S. Ribeiro, J.J. de MeloÓrfão, J.L. Figueiredo, M. Fernando, R. Pereira, “Catalytic conversion of cellulose to sorbitol over Ru supported on biomass-derived carbon-based materials”, Applied Catalysis B: Environmental, **256**(2019) 117826.
170. E. M. Lotfabad, J. Ding, K. Cui, A. Kohandehghan, W. P. Kalisvaart, M. Hazelton ,D. Mitlin, “High-Density Sodium and Lithium Ion Battery Anodes from Banana Peels”, ACS Nano, **8**(2014) 7115–7129.

References

171. R. Madhu, C. Karuppiah, S. M. Chen, P. Veerakumar, S. B. Liu, “Electrochemical detection of 4-nitrophenol based on biomass-derived activated carbon”, *Anal. Methods*, **6**(2014)5274–5528.
172. V. Veeramani, R. Madhu, S.-M. Chen, B.-S. Lou, P. Jayabal, V. S. Vasantha, “Biomass-derived functional porous carbons as novel electrode material for the practical detection of biomolecules in human serum and snail hemolymph”, *Scientific Reports*, **5**(2015) 10141.
173. M. Sevilla, R. Mokaya, “Energy storage applications of activated carbons: supercapacitors and hydrogen storage”, *Energy Environ. Sci.*, **7**(2014)1250-1280.
174. A. F. Dalebrook, W. Gan, M. Grasemann, S. Moret and G. Laurenczy, “Hydrogen storage: beyond conventional methods”, *Chem. Commun.*, **49**(2013)8735–8751 .
175. S. Laurichesse, L. Avérous, “Chemical modification of lignins: Towards biobased polymers”, *Progress in Polymer Science*, **39**(2014)1266-1290.
176. M.A. R. Amirza, M. M. R. Adib, R. Hamdan, “Application of Agricultural Wastes Activated Carbon for Dye Removal – An Overview”, *MATEC Web of Conferences* **103**(2017)06013.
177. J. A. Menendez-Diaz, I. Martin-Gullon, “Types of Carbon Adsorbents and Their Production”, in *Activated Carbon Surfaces in Environmental Remediation*, edited by T. J. Bandosz (Academic Press, New York, 2006),1-47.
178. K. Kaneko, “Determination of pore size and pore size distribution: 1. Adsorbents and catalysts”, *Journal of Membrane Science*, **96**(1994)59-89.
179. L.R. Radovic and F. Rodriguez Reinoso in *Chemistry and Physics of Carbon*, P.A. Thrower (Ed..), Marcel Dekker, NY, **25**(1996)243-358
180. C.A. Leon, Y. Leon, L. R. Radovic. "Interfacial chemistry and electrochemistry of carbon surfaces", *Chemistry And Physics Of Carbon*, **24**(1994)213-310
181. M.A. Montes-Morfin, D. Sufirez, J.A. Menendez, E. Fuente, “On the nature of basic sites on carbon surfaces: an overview”, *Carbon*, **42**(2004)1219.
182. M.A. Montes-Morfin, J.A. Menendez, E. Fuente, D. Sufirez, “Contribution of the Basal Planes to Carbon Basicity: An Ab Initio Study of the H₃O⁺–π Interaction in Cluster Models”, *J. Phys. Chem. B*, **102** (1998)5595.
183. L. Wang, Q. Zhang, S. Chen, F. Xu, S. Chen, J. Jia, H. Tan, H. Hou, Y. Song, “Electrochemical Sensing and Biosensing Platform Based on Biomass-Derived Macroporous Carbon Materials”, *Anal. Chem.* **86**(2014) 1414–1421.
184. J. Han, J. Zhao, Z. Li, H. Zhang, Y. Yan, D. Cao, G. Wang, “Nanoporous carbon derived from dandelion pappus as an enhanced electrode material with low cost for amperometric detection of tryptophan”, *J. Electroanal. Chem.* **818**(2018) 149–156.

References

185. J. Kim, A.S. Campbell, B.-F. de 'Avila, J. Wang, Wearable biosensors for healthcare monitoring", *Nat. Biotechnol.*, **37**(2019) 389–406
186. T. Li, Y. Li, C. Wang, Z.-D. Gao, Y.-Y. Song, "Nitrogen-doped carbon nanospheres derived from cocoon silk as metal-free electrocatalyst for glucose sensing", *Talanta*, **144** (2015) 1245–1251
187. X. Zhong, W. Yuan, Y. Kang, J. Xie, F. Hu, C.M. Li, "Biomass-derived hierarchical nanoporous carbon with rich functional groups for direct-electron-transfer-based glucose sensing", *Chem Electro Chem*, **3**(2016) 144–151.
188. C. Chen, Q. Xie, D. Yang, H. Xiao, Y. Fu, Y. Tan, S. Yao, "Recent advances in electrochemical glucose biosensors: a review", *RSC Adv.*, **3**(2013) 4473.
189. L. Wang, Y. Zhang, J. Yu, J. He, H. Yang, Y. Ye, Y. Song, "A green and simple strategy to prepare graphene foam-like three-dimensional porous carbon/Ni nanoparticles for glucose sensing", *Sens. Actuators B*, **239**(2017) 172–179.
190. R. Madhu, V. Veeramani, S.-M. Chen, A. Manikandan, A.-Y. Lo, Y.-L. Chueh, "Honeycomb-like porous carbon–cobalt oxide nanocomposite for high-performance enzymeless glucose sensor and supercapacitor applications", *ACS Appl. Mater. Interfaces*, **7**(2015) 15812–15820.
191. C. Chen, R. Ran, Z. Yang, R. Lv, W. Shen, F. Kang, Z.-H. Huang, "An efficient flexible electrochemical glucose sensor based on carbon nanotubes/carbonized silk fabrics decorated with Pt microspheres", *Sens. Actuators B*, **256**(2018) 63–70
192. W. He, C. Wang, H. Wang, M. Jian, W. Lu, X. Liang, X. Zhang, F. Yang, Y. Zhang, "Integrated textile sensor patch for real-time and multiplex sweat analysis", *Sci. Adv.*, **5** (2019)1–9.
193. V. Veeramani, R. Madhu, S.-M. Chen, P. Veerakumar, C.-T. Hung, S.-B. Liu, "Heteroatom-enriched porous carbon/nickel oxide nanocomposites as enzyme-free highly sensitive sensors for detection of glucose", *Sens. Actuators B*,**221**(2015) 1384–1390.
194. C. Xiao, X. Chu, Y. Yang, X. Li, X. Zhang, J. Chen, "Hollow nitrogen-doped carbon microspheres pyrolyzed from self-polymerized dopamine and its application in the simultaneous electrochemical determination of uric acid, ascorbic acid and dopamine", *Biosens. Bioelectron*, **26**(2011) 2934–2939
195. M. Taleb, R. Ivanov, S. Bereznev, S.H. Kazemi, I. Hussainova, "Ultra-sensitive voltammetric simultaneous determination of dopamine, uric acid and ascorbic acid based on a graphene-coated alumina electrode", *Microchim Acta*, **184**(2017) 4603–4610.
196. F. Sekli-Belaïdi, P. Temple-Boyer, P. Gros, Voltammetric microsensor using PEDOT-modified gold electrode for the simultaneous assay of ascorbic and uric acids, *J. Electroanal. Chem.*, **647**(2010) 159–168.

References

197. M. Chen, H. Li, "Separation of anodic peaks of ascorbic acid and dopamine at 4-hydroxy-2-mercapto-6-methyl pyrimidine modified gold electrode", *Electroanalysis*, **10**(1998) 477–479.
198. W. Zhang, L. Liu, Y. Li, D. Wang, H. Ma, H. Ren, Y. Shi, Y. Han, B.-C. Ye, "Electrochemical sensing platform based on the biomass-derived microporous carbons for simultaneous determination of ascorbic acid, dopamine, and uric acid", *Biosens. Bioelectron.*, **121**(2018) 96–103.
199. V. Veeramani, R. Madhu, S.M. Chen, B.S. Lou, J. Palanisamy, V.S. Vasantha, "Biomass-derived functional porous carbons as novel electrode material for the practical detection of biomolecules in human serum and snail hemolymph", *Sci. Rep.*, **5**(2015) 1–9.
200. C. Xiao, X. Chu, Y. Yang, X. Li, X. Zhang, J. Chen, "Hollow nitrogen-doped carbon microspheres pyrolyzed from self-polymerized dopamine and its application in the simultaneous electrochemical determination of uric acid, ascorbic acid and dopamine" *Biosens. Bioelectron.* **26**(2011) 2934–2939.
201. L. Zhang, J. Zhang, "3D hierarchical bayberry-like Ni@carbon hollow nanosphere/rGO hybrid as a new interesting electrode material for simultaneous detection of small biomolecules", *Talanta*. **178**(2018) 608–615.
202. T. Sha, J. Liu, M. Sun, L. Li, J. Bai, Z. Hu, M. Zhou, "Green and low-cost synthesis of nitrogen-doped graphene-like mesoporous nanosheets from the biomass waste of okara for the amperometric detection of vitamin C in real samples", *Talanta*, **200**(2019) 300–306.
203. X. Li, Y. Wang, J. Liu, M. Sun, X. Bo, H.L. Wang, M. Zhou, "Amperometric ascorbic acid biosensor based on carbon nanoplatelets derived from ground cherry husks", *Electrochim. Commun.*, **82**(2017)139–144.
204. N. Wang, Y. Hei, J. Liu, M. Sun, T. Sha, M. Hassan, X. Bo, Y. Guo, M. Zhou, "Low-cost and environment-friendly synthesis of carbon nanorods assembled hierarchical meso-macroporous carbons networks aerogels from natural apples for the electrochemical determination of ascorbic acid and hydrogen peroxide", *Anal. Chim. Acta.*,**1047**(2019) 36–44.
205. F. Li, C. Tang, S. Liu, G. Ma, "Development of an electrochemical ascorbic acid sensor based on the incorporation of a ferricyanide mediator with a polyelectrolyte–calcium carbonate microsphere", *Electrochim. Acta.*, **55** (2010) 838–843.
206. X. Zhang, Y. Cao, S. Yu, F. Yang, P. Xi, "An electrochemical biosensor for ascorbic acid based on carbon-supported Pd Ni nanoparticles", *Biosens. Bioelectron.*,**44**(2013) 183–190.
207. X. Liu, X. Xi, C. Chen, F. Liu, D. Wu, L. Wang, W. Ji, Y. Su, R. Liu, "Ordered mesoporous carbon-covered carbonized silk fabrics for flexible electrochemical dopamine detection", *J. Mater. Chem. B.*,**7** (2019) 2145– 2150.

References

208. F. Sun, L. Kang, X. Xiang, H. Li, X. Luo, R. Luo, C. Lu, X. Peng, Recent advances and progress in the detection of bisphenol A”, *Anal. Bioanal. Chem.* **408**(2016) 6913–6927.
209. Y. Xu, W. Lei, Y. Zhang, H. Fan, Q. Hao, S. Gao, “Bamboo Fungus-Derived Porous Nitrogen-Doped Carbon for the Fast, Sensitive Determination of Bisphenol”, *A, J. Electrochem. Soc.*, **164** (2017) B3043–B3048.
210. L. He, Y. Yang, J. Kim, L. Yao, X. Dong, T. Li, Y. Piao, “Multi-layered enzyme coating on highly conductive magnetic biochar nanoparticles for bisphenol A sensing in water”, *Chem. Eng. J.* ,**384**(2020) 123276.
211. Y. Liu, L. Yao, L. He, N. Liu, Y. Piao, “Electrochemical enzyme biosensor bearing biochar nanoparticle as a signal enhancer for bisphenol detection in water”, *Sensors*, **19** (2019)1619.
212. K.K. Reza, M.A. Ali, S. Srivastava, V.V. Agrawal, A.M. Biradar, “Tyrosinase conjugated reduced graphene oxide based bio interface for bisphenol A sensor”, *Biosens. Bioelectron.*,**74**(2015) 644–651.
213. M. Han, Y. Qu, S. Chen, Y. Wang, Z. Zhang, M. Ma, Z. Wang, G. Zhan, C. Li, “Amperometric biosensor for bisphenol A based on a glassy carbon electrode modified with a nanocomposite made from polylysine, single-walled carbon nanotubes and tyrosinase”, *Microchim. Acta.*,**180**(2013) 989–996.
214. R. Bhujel, S. Rai, K. Baruah, U. Deka, J. Biswas, B.P. Swain, “Capacitive and sensing responses of biomass-derived silver decorated graphene”, *Sci. Rep.*,**9**(2019)1–14.
215. P.A. Ferreira, R. Backes,C. Alves Martins, C. T. de Carvalho, R.A. Bezerra da Silva, “Biochar: A Low-cost Electrode Modifier for electrocatalytic, Sensitive and Selective Detection of Similar Organic Compounds”, *Electroanalysis*, **30**(2018)2233-2236.
216. J. Wang, J. Yang, P. Xu, H. Liu, L. Zhang, S. Zhang, L. Tian, Gold nanoparticles decorated biochar modified electrode for the high-performance simultaneous determination of hydroquinone and catechol”, *Sensors and Actuators B: Chemical*, **306**(2020)127590.
217. Y. Xiang, H. Liu, J. Yang, Z. Shi, Y. Tan, J. Jin, R. Wang, S. Zhang, J.Wang Biochar Decorated with Gold Nanoparticles for Electrochemical Sensing Application, *Electrochimica Acta*, **261**(2018)464-473.
218. D. Chen, H. Zhou, H. Li, J. Chen, S. Li, F. Zheng, “Self-template synthesis of biomass-derived 3D hierarchical N-doped porous carbon for simultaneous determination of dihydroxybenzene isomers”, *Sci. Rep.*,**7**(2017) 1–10
219. C. Kalinke, P.R. de Oliveira, M.B. San Emeterio, A.González-Calabuig, M.del Valle, A. S. Mangrich, L.H. Marcolino Junior, M. F. Bergamini, “Voltammetric

References

- Electronic Tongue based on Carbon Paste Electrodes modified with Biochar for Phenolic Compounds Stripping Detection”, **31**(2019)2238-2245.
220. V. Veeramania, M. Sivakumar, S.-M. Chen, R. Madhu, H.R. Alamrid, Z.A. Alothmane, Md. S.A. Hossain, C.-K. Chen, Y. Yamauchi, N. Miyamoto, Kevin C.-W. Wu, “Lignocellulosic biomass-derived, graphene sheet-like porous activated carbon for electrochemical supercapacitor and catechin sensing”, *RSC Adv.*, **7**(2017)45668-45675.
221. V. Veeramani, R. Madhu, S.-M. Chen, “Pitchaimani Veerakumar b, Jhe-Jhen Syu a and Shang-Bin Liu Cajeput tree bark derived activated carbon for the practical electrochemical detection of vanillin”, *New J. Chem.*, **39**(2015)9109-9115.
222. G.A.C. Ribeiro, C.Q. da Rocha, A.A. Tanaka, I. Santos da Silva, “A fast, direct, and sensitive analysis method for catechin determination in green tea by batch injection analysis with multiple-pulse amperometry (BIA-MPA)”, *Anal. Methods*, **10**(2018)2034–2040.
223. P. Deng, Z. Xu, R. Zeng, C. Ding, “Electrochemical behaviour and voltammetric determination of vanillin based on an acetylene black paste electrode modified with graphene–polyvinylpyrrolidone composite film”, *Food Chem.*, **180**(2015)156–163.
224. D. Kim, J.M Kima, Y.Jeon, J. Lee, J. Oha, W.H. Antink, D. Kim, Y. Piao, “Novel two-step activation of biomass-derived carbon for highly sensitive electrochemical determination of acetaminophen., Sensors and Actuators B: Chemical”, **259**(2018)50-58.
225. H. Cheng, W. Weng, H. Xie, J. Liu, G. Luo, S. Huanga, W. Sun, G. Li, “Au-Pt@ Biomass porous carbon composite modified electrode for sensitive electrochemical detection of baicalein”, *Microchemical Journal*, **154** (2020)104602.
226. J. Qiao, Y. Zhang, S. Lei, Z.i. Liu, G. Li, B. Ye, “Sensitive determination of baicalein based on functionalized graphene loaded RuO₂ nanoparticles modified glassy carbon electrode”, *Talanta*, **188**(2018)714–721.
227. G. Binda, A. Pozzi, F. Livio, “An integrated interdisciplinary approach to evaluate potentially toxic element sources in a mountainous watershed”, *Environ. Geochem. Health*, **42**(2020) 1255–1272.
228. J.A. Buledi, S. Amin, S.I. Haider, M.I. Bhanger, A.R. Solangi, “A review on detection of heavy metals from aqueous media using nanomaterial-based sensors”, *Environ. Sci. Pollut. Res.*,**28**(2020)58994–59002.
229. R. Madhu , K.V. Sankar, S.-M. Chen, R.K. Selvan, “Eco-friendly synthesis of activated carbon from dead mango leaves for the ultrahigh sensitive detection of toxic heavy metal ions and energy storage applications”, *RSC Adv.*, **4**(2014)1225-1233.

References

230. P. Veerakumar, V. Veeramani, S.-M. Chen, R. Madhu, S.-B. Liu, “Palladium nanoparticle incorporated porous activated carbon: electrochemical detection of toxic metal ions”, *ACS Appl. Mater. Interfaces*, **8**(2016) 1319–1326.
231. T. Zhang, H. Jin, Y. Fang, J.B. Guan, S.J. Ma, Y.i. Pan, M. Zhang, H. Zhu, X.D. Liu, M.L. Du, “Detection of trace Cd²⁺, Pb²⁺ and Cu²⁺ ions via porous activated carbon-supported palladium nanoparticles modified electrodes using SWASV”, *Mater. Chem. Phys.*, **225**(2019) 433–442.
232. K.M. Zeinu , H. Hou , B. Liu , X. Yuan , L. Huang , X. Zhu , J. Hu , J. Yang, S. Liang ,X. Wu, “A novel hollow sphere bismuth oxide doped mesoporous carbon nanocomposite material derived from sustainable biomass for picomolar electrochemical detection of lead and cadmium”, *J. Mater. Chem. A*, **4**(2016)13967-13979.
233. T.M. Suguhiro, P.R. de Oliveira, E.I.P. de Rezende, A.S. Mangrich, L.H. Marcolino Junior, M.F. Bergamini, “An electroanalytical approach for evaluation of biochar adsorption characteristics and its application for lead and cadmium determination”, *Bioresour. Technol.* , **143** (2013) 40–45.
234. J. Guan, Y. Fang, T. Zhang, L. Wang, H. Zhu, M. Du, M. Zhang, “Kelp-derived activated porous carbon for the detection of heavy metal ions via square wave anodic stripping voltammetry”, *Electrocatalysis*, **11**(2020) 59–67.
235. D. Agustini, A.S. Mangrich, M.F. Bergamini, L.H. Marcolino-Junior, “Sensitive voltammetric determination of lead released from ceramic dishes by using of bismuth nanostructures anchored on biochar”, *Talanta*, **142** (2015) 221–227.
236. L. Li, K. Zhang, L.i. Chen, Z. Huang, G. Liu, M. Li, Y. Wen, “Mass preparation of micro/nano-powders of biochar with water-dispersibility and their potential application”, *New J. Chem.*, **41** (2017) 9649–9657.
237. Y. Baikeli, X. Mamat, N. Yalikun, Y. Wang, M. Qiao, Y. Li, G. Hu, “Differential pulse voltammetry detection of Pb(ii) using nitrogen-doped activated nanoporous carbon from almond shells”, *RSC Adv.*, **9**(2019) 23678–23685.
238. G. Liu, L. Li, K. Zhang, X. Wang, J. Chang, Y. Sheng, L. Bai, Y. Wen, Facile preparation of water-processable biochar based on pitch pine and its electrochemical application for cadmium ion sensing, *Int. J. Electrochem. Sci.*, **11** (2016) 1041–1054.
239. P.R. Oliveira, A.C. Lamy-Mendes, E.I.P. Rezende, A.S. Mangrich, L.H. Marcolino Junior, M.F. Bergamini, “Electrochemical determination of copper ions in spirit drinks using carbon paste electrode modified with biochar”, *Food Chem.* **171** (2015) 426–431.
240. C. Kalinke, P.R. Oliveira, G.A. Oliveira, A.S. Mangrich, L.H. Marcolino-Junior, M.F. Bergamini, “Activated biochar: Preparation, characterization and

References

- electroanalytical application in an alternative strategy of nickel determination”, Anal. Chim. Acta., **983** (2017) 103–111.
241. P.R. De Oliveira, A.C. Lamy-Mendes, J.L. Gogola, A.S. Mangrich, L.H. Marcolino, M.F. Bergamini, “Mercury nanodroplets supported at biochar for electrochemical determination of zinc ions using a carbon paste electrode”, Electrochim. Acta., **151**(2015) 525–530.
242. S. Liu, T. Han, Z. Wang, T. Fei, T. Zhang, “Biomass-derived Nitrogen and Phosphorus Co-doped Hierarchical Micro/mesoporous Carbon Materials for High-performance Non-enzymatic H₂O₂ Sensing” Electroanalysis., **31** (2019) 527–534.
243. L. Wang, Q. Zhang, S.S. Chen, F. Xu, S.S. Chen, J. Jia, H. Tan, H. Hou, Y. Song, “Electrochemical sensing and biosensing platform based on biomass-derived macroporous carbon materials”, Anal. Chem. , **86** (2014) 1414– 1421.
244. C. Xu, Y. Hei, J. Liu, M. Sun, T. Sha, N. Wang, M. Hassan, X. Bo, M. Zhou, “Synthesis of a three-dimensional interconnected carbon nanorod aerogel from wax gourd for amperometric sensing”, Microchim. Acta., **185** (2018)482.
245. D. Zhang, H. Zhao, Z. Fan, M. Li, P. Du, C. Liu, Y. Li, H. Li, H. Cao, “A highly sensitive and selective hydrogen peroxide biosensor based on gold nanoparticles and three-dimensional porous carbonized chicken eggshell membrane”, PLoS One, **10** (2015) 1–14.
246. M.J. Moorcroft, J. Davis, R.G. Compton, “Detection and determination of nitrate and nitrite: A review”, Talanta., **54** (2001) 785–803.
247. S. Yallappa, M. Shivakumar, K.L. Nagashree, M.S. Dharmaprkash, A. Vinu, G. Hegde, “Electrochemical Determination of Nitrite Using Catalyst Free Mesoporous Carbon Nanoparticles from Bio Renewable Areca nut Seeds”, J. Electrochem. Soc., **165** (2018) H614–H619.
248. K. Li, J. Xu, M. Arsalan, N. Cheng, Q. Sheng, J. Zheng, W. Cao, T. Yue, “Nitrogen-Doped Carbon Dots Derived from natural Seeds and Their Application for Electrochemical Sensing”, J. Electrochem. Soc., **166** (2019) B56–B62.
249. R. Madhu, V. Veeramani, S.M. Chen, “Heteroatom-enriched and renewable banana-stem-derived porous carbon for the electrochemical determination of nitrite in various water samples”, Sci. Rep., **4** (2014) 1–8.
250. L. Cao, Z.-W. Kang, Q. Ding, X. Zhang, H. Lin, M. Lin, D.-P. Yang, “Rapid pyrolysis of Cu²⁺-polluted eggshell membrane into a functional Cu²⁺-Cu⁺/biochar for ultrasensitive electrochemical detection of nitrite in water”, Sci. Total Environ.,**723** (2020) 138008.
251. D. C. Marcano, D. V. Kosynkin, J. M. Berlin, A. Sinitskii, Z. Sun, A. Slesarev, L.B. Alemany, W. Lu, J. M. Tour, “ Improved Synthesis of Graphene Oxide”, ACS Nano, **4**(2010)4806–4814.

References

252. S. Pei, H.-M. Cheng, “The reduction of graphene oxide” Carbon, **50**(2012)3210-3228.
253. M.J. McAllister, J.-L. Li, D.H. Adamson, H.C. Schniepp, A.A. Abdala, J. Liu, M. Herrera-Alonso, D.L. Milius, R. Car, R.K. Prud’homme , I.A. Aksay, “Single Sheet Functionalized Graphene by Oxidation and Thermal Expansion of Graphite”, ChemMater, **19**(2007) 4396–4404.
254. H.C. Schniepp, J-L Li, M.J. McAllister, H. Sai, M. Herrera-Alonso, D.H. Adamson, R.K. Prud’homme, R. Car, D.A. Saville, I.A. Aksay, “Functionalized Single Graphene Sheets Derived from Splitting Graphite Oxide”, J. Phys. Chem. B, **110**(2006)8535–8539.
255. S. Zhu, J. Shao, Y. Song, X. Zhao, J. Du, L. Wang, H. Wang, K. Zhang, J. Zhang. B. Yang, “Investigating the surface state of graphene quantum dots†”, Nanoscale, **7**(2015)7927.
256. J.OM. Bockris, A.K.N. Reddy, M.G. Aldeco, “Modern electrochemistry: Fundamentals of Electrodics”, New York, 2nd Edn, Vol.**2A**, 2001.
257. L.J. Edgar, “Method and apparatus for controlling electric currents”, Patented Jan. 28, 1930, NEW YORK.
258. D. Kahng, M.M. Atalla, “Silicon-Silicon Dioxide Field Induced Surface Devices”, IRE-AIEEE Solid-State Device Research Conference, Carnegie Institute of Technology, Pittsburgh, PA.
259. D. F. Barbe, C.R. Westgate, “Surface State Parameters of Metal-Free Phthalocyanine Single Crystals”, Jour. of Phys. and Chem. of Solids, **31**(1970) 2679-2687
260. M. L Petrova., L.D. Rozensht, “Field Effect In Organic Semiconductor Chloranil”, Soviet Physics Solid State, USSR 12.3 (1970): 756.
261. F. Ebisawa, T. Kurokawa, S. Nara, “Electrical Properties of Polyacetylene/Polysiloxane Interface”, Journal of Applied Physics, **54**(1983) 3255.
262. H. Koezuka, A. Tsumura, T. Ando, “Field-Effect Transistor with Polythiophene Thin Film”, Synthetic Metals,**18**(1987) 699-704
263. A. Tsumura, H. Koezuka, T. Ando, “Polythiophene Field-Effect Transistor: Its Characteristics and Operation Mechanism”, Synthetic Metals, **25**(1988)11-23.
264. F. Maddalena, “Organic Field-Effect Transistors for Sensing Applications”, 2011.

References

265. C.R. Newman, C. D. Frisbie, D.A. da Silva, F. Jean-Luc Bre'das, P.C. Ewbank, K.R. Mann, "Introduction to Organic Thin Film Transistors and Design of n-Channel Organic Semiconductors", *Chem. Mater.* , **23**(2004)4436–4451.
266. A. K. Geim, K.S. Novoselov, "The rise of graphene", *Nano. and Tech.*, (2009)11-19.
267. C. Soldano, A. Mahmood, Erik Dujardin, "Production, properties and potential of graphene", *Carbon*, **48**(2010)2127-2150.
268. S. Liu, X. Ma, B. Wang, X. Shang, W. Wang, and X. Yu, "Nanostructure-Dependent Interfacial Interactions between Poly(3-hexylthiophene) and Graphene Oxide", *Macromolecules*, **48**(2015)5791
269. B. K. Sharma, J. H. Ahn, "Graphene-based field effect transistors: Efforts made towards flexible electronics", *Solid State Electron.* , **89**(2013)177.
270. M. M. Stylianakis, E. Stratakis, E. Koudoumas, E. Kymakis, S. H. Anastasiadis, "Organic Bulk Heterojunction Photovoltaic Devices Based on Polythiophene-Graphene Composites", *ACS Appl. Mater. Interfaces*, **4**(2012)4864
271. F. Zheng, X.-Y.Yang, P.-Q.Bi, M.-S.Niu, C.-K.Lv, W.Qin, Y.-Z.Wang, X.-T. Hao, K. P.Ghiggino, L. Feng, "Poly(3-hexylthiophene) coated graphene oxide for improved performance of bulk heterojunction polymer solar cells", *Organ. Electron.*, **44**(2017)149.
272. S. Wang, C. T. Nai, X. F. Jiang, Y. Pan,C. H. Tan, M. Nesladek, Q. H. Xu, K. P. Loh., "Graphene Oxide–Polythiophene Hybrid with Broad-Band Absorption and Photocatalytic Properties", *J. Phys.Chem. Lett.*, **3**(2012)2332
273. Y. Gao, H. L. Yip, K. S. Chen, K. M. O'Malley, O. Acton, Y.Sun, G. Ting, H. Chen, A. K. Y. Jen, "Surface Doping of Conjugated Polymers by Graphene Oxide and Its Application for Organic Electronic Devices", *Adv. Mater.*,**23**(2011)1903
274. A. Liscio, G. P. Veronese, E. Treossi, F. Suriano, F. Rossella, V.Bellani, R. Rizzoli, P. Samori,V. Palermo, "Charge transport in graphene–polythiophene blends as studied by Kelvin Probe Force Microscopy and transistor characterization" *J. Mater. Chem.*, **21**(2011)2924.
275. N.-J. Kim, J.-H.Kwon, and M. Kim, " Highly Oriented Self-Assembly of Conducting Polymer Chains: Extended-Chain Crystallization during Long-Range Polymerization", *J. Phys. Chem. C*, **117**(2013)15402.

References

276. I. McCulloch, M. Heeney, C. Bailey, K. Genevicius, I. Macdonald, M. Shkunov, D. Sparrowe, S. Tierney, R. Wagner, W. Zhang, M. L. Chabinyc, R. J. Kline, M. D. McGehee, M. F. Toney, “Liquid-crystalline semiconducting polymers with high charge-carrier mobility”, *Nat.Mater.*, **5**(2006)328.
277. T. Schuettfort, B. Watts, L. Thomsen, M. Lee, H. Sirringhaus, C. R. McNeill, “Microstructure of Polycrystalline PBT TT Films: Domain Mapping and Structure Formation”, *ACS Nano*, **6**(2012)1849.
278. M. Pandey, S. Nagamatsu, W. Takashima, S. S. Pandey, S. Hayase, “Interplay of Orientation and Blending: Synergistic Enhancement of Field Effect Mobility in Thiophene-Based Conjugated Polymers”, *J. Phys. Chem. C*, **121**(2017)11184.
279. S. Watanabe, K. Ando, K. Kang, S. Mooser, H. Kurebayashi, E. Saitoh, H. Sirringhaus, Y. Vaynzof, “Polaron spin current transport in organic semiconductors”, *Nat. Phys.*, **10**(2014)308
280. L. H. Jimison, A. Salleo, M. L. Chabinyc, D. P. Bernstein, M. F. Toney, “Correlating the microstructure of thin films of poly[5,5-bis(3-dodecyl-2-thienyl)-2,2-bithiophene] with charge transport: Effect of dielectric surface energy and thermal annealing”, *Phy. Rev. B* **78**(2008)25319.
281. M. Pandey, S.S. Pandey, S. Nagamatsu, S. Hayase, W. Takashima, “Solvent driven performance in thin floating-films of PBT TT for organic field effect transistor: Role of macroscopic orientation”, *Organ. Electron.* **43**(2017)240.
282. J. R. Potts, D.R. Dreyer, C.W. Bielawski, R. S. Ruoff, “Graphene-based polymer nanocomposites”, *Polymer*, **52**(2011)5.
283. Y.-J. Kim, H.-T. Jung, C. W. Ahn, H.-J. Jeon, “Simultaneously Induced Self-Assembly of Poly(3-hexylthiophene) (P3HT) Nanowires and Thin-Film Fabrication via Solution-Floating Method on a Water Substrate”, *Adv. Mater. Interfaces*, **4**(2017)1700342.
284. J. Noh, S. Jeong, J.-Y. Lee, “Ultrafast formation of air-processable and high-quality polymer films on an aqueous substrate”, *Nat. Comm*, **7**(2016)12374.
285. J. Guerrero-Contreras, F. Caballero-Briones, “Graphene oxide powders with different oxidation degrees, prepared by synthesis variations of the Hummers method”, *Mater. Chem. Phys.*, **153**(2015)209.
286. M. Brinkman, L. Harmann L. Biniek, K. Tremel, N. Kayunkid, “Orienting Semi-Conducting π -Conjugated Polymers”, *Macromol. rapid commun.* **35**(2014)9.

References

287. J. D. Roehling, I. Arslan, A. J. Moule, “Controlling microstructure in poly(3-hexylthiophene) nanofibers”, *J. Mater. Chem.* **22**(2012)2498.
288. F.C. Spano, Modeling disorder in polymer aggregates: The optical spectroscopy of regioregular poly(3-hexylthiophene) thin films”, *J. Chem. Phys.*, **122**(2005)234701.
289. F.C. Spano, “Absorption in regio-regular poly(3-hexyl)thiophene thin films: Fermi resonances, interband coupling and disorder”, *Chem. Phys.*, **325**(2006)22.
290. X. Zhou, X. Yang, “Improved dispersibility of graphene oxide in *o*-dichlorobenzene by adding a poly(3-alkyl thiophene)”, *Carbon*, **50**(2012) 4566.
291. A. Chunder, J. Liu, L. Zhai, “Reduced Graphene Oxide/Poly-(3-hexylthiophene) Supramolecular Composites”, *Macromol. Rapid Commun.*, **31**(2010)380.
292. Z. Yang, X. Shi, J. Yuan, H. Pu, Y. Liu, “Preparation of poly(3-hexylthiophene)/graphene nanocomposite via in situ reduction of modified graphite oxide sheets”, *Appl. Surf. Sci.*, **257**(2010)138.
293. M. Baghgar, M. D. Barnes, “Work Function Modification in P3HT H/J Aggregate Nanostructures Revealed by Kelvin Probe Force Microscopy and Photoluminescence Imaging”, *ACS Nano*, **9**(2015) 7105.
294. R.K. Pandey, A.K. Singh, R. Prakash, “Directed Self-Assembly of Poly(3,3"-dialkyl quarter thiophene) Polymer Thin Film: Effect of Annealing Temperature”, *J. Phys. Chem. C*, **118**(2014)22943.
295. M. Pandey, S.S. Pandey, S. Nagamatsu, S. Hayase, W. Takashima, “Enhancement of carrier mobility along with anisotropic transport in non-regiocontrolled poly (3-hexylthiophene) films processed by floating film transfer method”, *Organ. Electron.*, **43**(2017)240.
296. C. Li, N. Zheng, H. Chen, J. Huang, Z. Mao, L. Zheng, C. Weng, S. Tan, G. Yu, “Synthesis, characterization, and field-effect transistor properties of tetrathienoanthracene-based copolymers using a two-dimensional π -conjugation extension strategy: a potential building block for high-mobility polymer semiconductors”, *Polym.Chem.* ,**6**(2015)5393.

References

297. H. Koezuka, A. Tsumura, T. Ando, “Field-effect transistor with polythiophene thin film”, *Synth. Met.*, **18**(1987)699.
298. A. Facchetti, “Semiconductors for organic transistors”, *Mater. Today*, **10**(2007)28.
299. A.C. Arias, J. D. MacKenzie, I. McCulloch, J. Rivnay, A. Salleo, “Materials and Applications for Large Area Electronics: Solution-Based Approaches”, *Chem. Rev.* **110**(2010) 3-24.
300. S.K. Gupta, P. Jha, A. Singh, M. M. Chehimi, D. K. Aswal, “Flexible organic semiconductor thin films”, *J. Mater. Chem. C* **3**(2015)8468.
301. L.-L. Chua, J. Zaumseil, J.-F. Chang, E. C.-W. Ou, P. K.-H. Ho, H. Sirringhaus, R. H. Friend, “General observation of n-type field-effect behaviour in organic semiconductors”, *Nature*, **434**(2005)194.
302. S. Choi, C. Fuentes-Hernandez, C.-Y. Wang, T.M. Khan, F.A. Larrain, Y. Zhang, S. Barlow, S.R. Marder, B. Kippelen, “A Study on Reducing Contact Resistance in Solution-Processed Organic Field-Effect Transistors”, *ACS Appl. Mater. Interfaces* **8**(2016) 24744.
303. M. Waldrip, O. D. Jurchescu, D. J. Gundlach, E. G. Bittle, “Contact Resistance in Organic Field-Effect Transistors: Conquering the Barrier”, *Adv. Funct. Mater.* , **29**(2019)1904576.
304. Y. Yuan, G. Giri, A.L. Ayzner, A.P. Zombelt, S.C. Mannsfeld, J. Chen, D. Nordlund, M.F. Toney, J. Huang, Z. Bao, “Ultra-high mobility transparent organic thin film transistors grown by an off-centre spin-coating method”, *Nat. Commun.* **5**(2014) 3005.
305. C. Luo, A. K. K. Kyaw, L. A. Perez, S. Patel, M. Wang, B. Grimm, G. C. Bazan, E. J. Kramer, A. J. Heeger, “General Strategy for Self-Assembly of Highly Oriented Nanocrystalline Semiconducting Polymers with High Mobility”, *Nano Lett.*,**14**(2014)2764.
306. A. Facchetti, “Polymer donor–polymer acceptor (all-polymer) solar cells”, *Mater. Tod.* , **16**(2013) 123-132.
307. J. Zaumseil, H. Sirringhaus, “Electron and Ambipolar Transport in Organic Field-Effect Transistors”, *Chem. Rev.*, **107**(2007)1296–1323.
308. M.T. Byrne, Y.K. Gun’ko, “Recent advances in research on carbon nanotube-polymer composites”, *Adv Mater.*, **22**(2010)1672–88.

References

309. R. Sengupta, M. Bhattacharya, S. Bandyopadhyay, A.K. Bhowmick, “A review on the mechanical and electrical properties of graphite and modified graphite reinforced polymer composites”, *Prog. Polym. Sci.*, **36**(2011)638–70.
310. W. Bauhofer, J.Z. Kovacs, “ A review and analysis of electrical percolation in carbon nanotube polymer composites”, *Compos. Sci. Technol.* , **69**(2009)1486–98.
311. H. Deng, R. Zhang, E. Bilotti, J. Loos, T.Peijs, “Conductive polymer tape containing highly oriented carbon nanofillers”, *J.Appl. Polym.Sci.*, **113**(2009)742–51.
312. K.S. Novoselov, D. Jiang, F. Schedin, T.J. Booth, V.V. Khotkevich, S.V. Morozov, A. K. Geim, “Two-dimensional atomic crystals”, **102** (2005) 10451-10453.
313. K.S. Novoselov, A.K. Geim, S.V. Morozov, D. Jiang, M.I. Katsnelson, I.V. Grigorieva, S.V. Dubonos, A.A. Firsov, “Two-dimensional gas of massless Dirac fermions in graphene”, *Nature*, **438**(2005)197–200.
314. G. Eda, G. Fanchini, M. Chhowalla, “Large-area ultrathin films of reduced graphene oxide as a transparent and flexible electronic material”, *Nature Nanotechnology*, **3**(2008)270–274.
315. C.Gomez-Navarro, J.C. Meyers, R.S. Sundaram, A. Chuvalin, S. Kurash, M. Burghard, K. Kern, U. Kaizer, “Atomic Structure of Reduced Graphene Oxide”, *Nano Lett.*, **10**(2010)1144–1148.
316. W.R. Salaneck, I. Lundström, B. G. Rånby, “Conjugated polymers and related materials: the interconnection of chemical and electronic structure: proceedings of the Eighty-first Nobel Symposium”, **81**(1993) Oxford University Press, USA.
317. W.H. Lee, J.H. Cho, K. Cho, “Control of mesoscale and nanoscale ordering of organic semiconductors at the gate dielectric/semiconductor interface for organic transistors”, *J. Mater. Chem.*, **20**(2010)2549-2561.
318. C. Suryanarayanan, E. Ravindran, S.J. Ananthakrishnan, N. Somanathan, A.B. Mandal, “A molecular insight on the supramolecular assembly of thiophene polymers”, *J. Mater. Chem.*, **22**(2012) 18975.
319. A. Bolognesi, C. Botta, M. Martinelli, W. Porzio, “Polarized photoluminescence and electroluminescence in oriented ®lms of regioregular poly(3-alkyl thiophene)”, *Org. Electron.*, **1**(2000) 27-32.

References

320. H. Sirringhaus, R. J. Wilson, R. H. Friend, M. Inbasekaran, W. Wu, E. P. Woo, M. Grell, D. D. C. Bradley, “Mobility enhancement in conjugated polymer field-effect transistors through chain alignment in a liquid-crystalline phase”, *Appl. Phys. Lett.*, **77**(2000) 406.
321. S. Nagamatsu, W. Takashima, K. Kaneto, Y. Yoshida, N. Tanigaki, K. Yase, and K. Omote, “Backbone Arrangement in “Friction-Transferred” Regioregular Poly(3-alkyl thiophene)s”, *Macromolecules*, **36**(2003)5252.
322. G. Xu, Z. Bao, J.T. Groves, “Langmuir–Blodgett Films of Regioregular Poly(3-hexylthiophene) as Field-Effect Transistors”, *Langmuir*, **16**(2000)1834.
323. A. Dauendorffer, S. Nagamatsu, W. Takashima, K. Kaneto, “Optical and Transport Anisotropy in Poly(9,90 -dioctyl-fluorene-alt-bithiophene) Films Prepared by Floating Film Transfer Method”, *Jpn. J. Appl. Phys.*, **51**(2012) 055802.
324. X. Wen, C.W. Garland, T. Hwa, M. Kardar, E. Kokufuta, Y. Li, M. Orkisz, T. Tanaka, “Crumpled and collapsed conformation in graphene oxide membrane”, *Nature*, **355** (1992)426-428.
325. R. Larciprete, S. Fabris, T. Sun, P. Lacovig, A. Baraldi, S. Lizzit, “Dual Path Mechanism in the Thermal Reduction of Graphene Oxide”, *J. Am. Chem. Soc.*, **133**(2011), 17315–17321.
326. A.C. Ferrari, J. Robertson, “Interpretation of Raman spectra of disordered and amorphous carbon”, *Phys. Rev. B*, **61**(2000)14095–14107.
327. I. K. Moon, J. Lee, R.S. Ruoff, H. Lee, “Reduced graphene oxide by chemical graphitization”, *Nature Communications*, **1**(2010)73.
328. X. Mei Jiang, R. Österbacka, O. Korovyanko, C.P. An, B. Horovitz, R.A.J. Janssen, Z. Valy Vardeny, “Spectroscopic Studies of Photoexcitations in Regioregular and Regiorandom Polythiophene Films”, *Adv. Func. Mat.*,**12**(2002)587-597.
329. X. Zhou, X. Yang, “Improved dispersibility of graphene oxide in *o*-dichlorobenzene by adding a poly(3-alkyl thiophene)”, *Carbon* **50**(2012)4566.
330. M. Silverstein, G.C. Basseler, C. Morrill, “Spectrometric Identification of Organic Compounds”, sixth ed, John Wiley& Sons Inc, New York,1981.
331. S.Sweetnam, K.R. Graham, G.O. Ngongang Ndjawa,T. Heumüller, J.A. Bartelt, T.M. Burke, W. Li, W. You, A. Amassian, M.D. McGehee, “Characterization of the

References

- Polymer Energy Landscape in Polymer: Fullerene Bulk Heterojunctions with Pure and Mixed Phases”, J. Am. Chem. Soc., **136**(2014)14078–14088.
332. E.Istif, J.Hernández-Ferrer, E.P. Urriolabeitia, A. Stergiou,N. Tagmatarchis, G.Fratta, M.J. Large, A.B. Dalton, A.M. Benito, W.K. Maser, “Conjugated Polymer Nanoparticle–Graphene OxideCharge-Transfer Complexes”, Adv. Func. Mat., **28**(2018) 1707548.
333. D.P. Ostrowski, L.A. Lytwak, M.L. Mejia, K.J. Stevenson, B. J. Holliday, D.A. Vanden Bou, “The Effects of Aggregation on Electronic and Optical Properties of Oligothiophene Particles”, ACS Nano, **6**(2012)5507–5513.
334. S. Liu, X. Ma, B. Wang, X. Shang, W. Wang, Xifei Yu, “Nanostructure-Dependent Interfacial Interactions between Poly(3- hexylthiophene) and Graphene Oxide”, Macromolecules, **48**(2015)5791–5798.
335. M.L. Clingerman, J.A. King, K.H. Schulz, J. D. Meyers, “Evaluation of electrical conductivity models for conductive polymer composites”, J.of Appl. Poly Sci., **83**(2002) 1341-1356.
336. J. S. Andrade, Jr., N. Ito, Y. Shibusa, “Percolation transition in conducting polymer networks”, Phys. Rev. B, **54**(1996) 3910.
337. A.C. Arias, J. D. Mackenzie, I. McCulloch, J. Rivnay, A. Salleo, “Materials and applications for large area electronics: Solution-based approaches”, Chem. Rev., **110**(2010)3–24.
338. H.T. Yi, M.M. Payne, J.E. Anthony, V. Podzorov, “Ultra-flexible solution-processed organic field-effect transistors”, Nature Commun., **3**(2012)1259.
339. K. Fukuda, Y. Takeda, Y. Yoshimura, R. Shiwaku, L.T. Tran, T. Sekine, M. Mizukami, D. Kumaki, S. Tokito, “Fully-printed high-performance organic thin-film transistors and circuitry on one-micron-thick polymer films”, Nature Commun., **5**(2014)4147.
340. J.Y. Oh, S. Rondeau-Gagné, Y.-C. Chiu, A. Chortos, F. Lissel, G.-J. Nathan Wang, B.C. Schroeder, T. Kurosawa, J. Lopez, T. Katsumata, J. Xu, C. Zhu, X. Gu, W.-G. Bae, Y. Kim, L. Jin, J.W. Chung, J. B.-H. Tok, Z. Bao “Intrinsically stretchable and healable semiconducting polymer for organic transistors”, Nature, **539**(2016) 411–415.

References

341. Y. Lee, M. Shin, K. Thiyagarajan, U. Jeong, “Approaches to stretchable polymer active channels for deformable transistors”, *Macromolecules*, **49**(2015)433–444
342. N.A. Minder, S. Lu, S. Fratini, S. Ciuchi, A. Facchetti, A.F. Morpurgo, “Tailoring the molecular structure to suppress extrinsic disorder in organic transistors”, *Adv. Mater.*, **26**(2014) 1254–1260.
343. Z. B. Henson, K. Müllen, G.C. Bazan, “Design strategies for organic semiconductors beyond the molecular formula,” *Nature Chem.*, **4**(2012)699–704.
344. J. Smith et al., “Solution-processed organic transistors based on semiconducting blends”, *J. Mater. Chem.*, **20**(2010)2562–2574.
345. K. Myny, E. van Veenendaal, G.H. Gelinck, J. Genoe, W. Dehaene, P. Heremans, “An 8-bit, 40-instructions-per-second organic microprocessor on plastic foil”, *IEEE J. Solid-State Circuits*, **47**(2012)284–291.
346. W. Tang et al., “Low-voltage pH sensor tag based on all solution-processed organic field-effect transistor”, *IEEE Electron Device Lett.*, **37**(2016)1002–1005.
347. W. Xiong, Y. Guo, U. Zschieschang, H. Klauk, B. Murmann, “A 3-V, 6-bit C-2C digital-to-analogue converter using complementary organic thin-film transistors on glass,” *IEEE J. Solid-State Circuits*, **45**(2010)1380–1388.
348. M. Kaltenbrunner et al., “An ultra-lightweight design for imperceptible plastic electronics,” *Nature*, **499**(2013) 458–463.
349. B. C.-K. Tee, “A skin-inspired organic digital mechanoreceptor,” *Science*, **350**(2015) 313–316.
350. R. A. Street et al., “From printed transistors to printed smart systems,” *Proc. IEEE*, **103**(2015) 607–618.
351. Z. Bao, A. Dodabalapur, and A. J. Lovinger, “Soluble and processable regioregular poly(3-hexylthiophene) for thin film field-effect transistor applications with high mobility”, *Appl. Phys. Lett.*, **69**(1996) 4108.
352. H. Sirringhaus, P. J. Brown, R. H. Friend, M. M. Nielsen, K. Bechgaard, B. M. W. Langeveld-Voss, A. J. H. Spiering, R. A. J. Janssen, E. W. Meijer, P. Herwig, D. M. de Leeuw “Two-dimensional charge transport in self-organized, high-mobility conjugated polymers”, *Nature London*, **401**(1999)685.

References

353. M. Terrones, A.R. Botello-Mendez, J. Campos-Delgado, F. Lopez-Urías, Y.I. Vega-Cantu, F.J. Rodríguez-Macías, A.L. Elías, E. Muñoz-Sandoval, A. G. Cano-Marquez, J.-C. Charlier, “Graphene and graphite nanoribbons: Morphology, properties, synthesis, defects and applications”, *Nano Today*, **5**(2010)351–372.
354. S. Zhu, J. Zhang, C. Qiao, S. Tang, Y. Li, W. Yuan, B. Li, L. Tian, F. Liu, R. Hu, H. Gao, H. Wei, H. Zhang, H. Sun, B. Yang, “Strongly green-photoluminescent graphene quantum dots for bioimaging applications”, *Chem. Commun.*, **47**(2011) 6858–6860.
355. A. K. Geim, K. S. Novoselov, “The rise of graphene”, *Nat. Mater.*, **6**(2007)183–191.
356. K. S. Novoselov, V. I. Falko, L. Colombo, P. R. Gellert, M. G. Schwab, K. Kim, “A roadmap for graphene”, *Nature*, **490**(2012)192–200.
357. J. Peng, W. Gao, B.K. Gupta, Z. Liu, R. Romero-Aburto, L. Ge, L. Song, L.B. Alemany, X. Zhan, G. Gao, S.A. Vithayathil, B. A. Kaipparettu, A. A. Marti, T. Hayashi, J.-J. Zhu, P. M. Ajayan, “Graphene Quantum Dots Derived from Carbon Fibers”, *Nano Lett.* ,**12**(2012)844–849.
358. H. Li, X. He, Z. Kang, H. Huang, Y. Liu, J. Liu, S. Lian, C. H. A. Tsang, X. Yang, S.T. Lee, “Water-soluble fluorescent carbon quantum dots and photocatalyst design”, *Angew. Chem., Int. Ed.*, **49**(2010)4430–4434.
359. S. Mondal, U. Rana, S. Malik, “Graphene quantum dot-doped polyaniline nanofiber as high-performance supercapacitor electrode materials”, *Chem. Commun.*, **51**(2015) 12365–12368.
360. S.Wang, Y. Zhang, G. Pang, Y. Zhang, S. Guo, “Tuning the aggregation/disaggregation behaviour of graphene quantum dots by structure-switching aptamer for high-sensitivity fluorescent ochratoxin” A sensor. *Anal. Chem.* **89**(2017)1704–1709.
361. X. Li, M. Rui, J. Song, Z. Shen, H. Zeng, “Carbon and Graphene Quantum Dots for Optoelectronic and Energy Devices: A Review”, *Adv. Func. Mat.*, **25**(2015) 4929-4947.
362. P. Tian, L. Tang, K.S. Teng, S.P. Lau, “ Graphene quantum dots from chemistry to applications”, *Mater. Chem. Today*, **10** (2018) 221-258.
363. J. Du, H.-M. Cheng, “The Fabrication, Properties, and Uses of Graphene/Polymer Composites”, *Macromol. Chem. Phys.*, **213**(2012)1060– 1077.

References

364. A. Badri, M.R. Whittaker, P.B. Zetterlund, “Modification of graphene/graphene oxide with polymer brushes using controlled/living radical polymerization”, *J. Polym. Sci., Part A: Polym. Chem.*, **50**(2012)2981–2992.
365. V. Georgakilas, J.N. Tiwari, K.C. Kemp, J.A. Perman, A.B. Bourlinos, K. S. Kim, R.Zboril, “Noncovalent Functionalization of Graphene and Graphene Oxide for Energy Materials, Biosensing, Catalytic, and Biomedical Applications”, *Chem. Rev.*, **116**(2016)5464–5519.
366. H.N. Tsao, D. Cho, J.W. Andreasen, A. Rouhanipour, D.W. Breiby, W. Pisula, K. Mullen, “The influence of morphology on high-performance polymer field effect transistors”, *Adv. Mater.*, **21**(2009) 209–212.
367. D. Choi, T.K. An, Y.J. Kim, D.S. Chung, S.H. Kim, C.E. Park, “Effects of semiconductor/dielectric interfacial properties on the electrical performance of top-gate organic transistors” *Org. Electron.*, **15** (2014)1299–1305.
368. U. Bielecka, P. Lutsyk, K. Janus, J. Sworakowski, W. Bartkowiak, “Effect of solution aging on morphology and electrical characteristics of regioregular P3HT FETs fabricated by spin coating and spray coating”, *Org. Electron.*, **12** (2011) 1768–1776.
369. H. Heil, T. Finnberg, N. von Malm, R. Schmechel, H. Von Seggern, “The influence of mechanical rubbing on the field-effect mobility in poly hexylthiophene”, *J. Appl. Phys.*, **93** (2003) 1636.
370. S. Nagamatsu, W. Takashima, K. Kaneto, Y. Yoshida, N. Tanigaki, K. Yase, K. Omote, Backbone arrangement in “Friction-Transferred” regioregular poly(3-alkyl thiophene)s”, *Macromolecules*, **36** (2003) 5252–5257.
371. J. Park, S. Lee, H.H. Lee, “High-mobility polymer thin-film transistors fabricated by solvent-assisted drop-casting”, *Org. Electron.* **7** (2006) 256–260.
372. T. Morita, V. Singh, S. Nagamatsu, S. Oku, W. Takashima, K. Kaneto, “Enhancement of transport characteristics in poly (3-hexylthiophene) films deposited with floating film transfer method”, *Appl. Phys. Exp.*, **2** (2009) 111502.
373. A. Dauendorffer, S. Nagamatsu, W. Takashima, K. Kaneto, “Optical and transport anisotropy in poly (9, 9'-dioctyl-fluorene-alt-bithiophene) films prepared by floating film transfer method”, *J. Appl. Phys.*, **51** (2012) 055802.

References

374. T. Morita, V. Singh, S. Nagamatsu, S. Oku, W. Takashima, K. Kaneto, “Enhancement of transport characteristics in poly (3-hexylthiophene) films deposited with floating film transfer method”, *Appl. Phys. Express*, **2** (2009) 111502.
375. M. Pandey, A. Gowda, S. Nagamatsu, S. Kumar, W. Takashima, S. Hayase, S.S. Pandey, “Rapid formation and macroscopic self-assembly of liquid-crystalline, high-mobility, semiconducting thienothiophene”, *Adv. Mater. Interfaces*, **5**(2018)1700875.
376. K. Bhargava, V. Singh, “High-sensitivity organic phototransistors prepared by floating film transfer method”, *Appl. Phys. Express*, **9** (2016) 091601.
377. A. Dauendorffer, S. Miyajima, S. Nagamatsu, W. Takashima, S. Hayase, K. Kaneto, “One-step deposition of self-oriented β -phase polyfluorene thin films for polarized polymer light-emitting diodes”, *Appl. Phys. Express*, **5**(2012) 092101.
378. T. Ohtomo, K. Hashimoto, H. Tanaka, Y. Ohmori, M. Ozaki, H. Kajii, “Improved carrier balance and polarized in-plane light emission at the full-channel area in ambipolar heterostructure polymer light-emitting transistors” *Org. Electron.*, **32** (2016) 213e219.
379. M. Pandey, S. Nagamatsu, S.S. Pandey, S. Hayase, W. Takashima, “Enhancement of carrier mobility along with anisotropic transport in non-regio controlled poly (3-hexylthiophene) films processed by floating film transfer method”, *Org. Electron.*, **38** (2016) 115e120.
380. A. Dauendorffer, S. Nagamatsu, W. Takashima, K. Kaneto, “Optical and transport anisotropy in poly(9,9'-dioctyl-fluorene-alt- bithiophene) films prepared by floating film transfer method”, *Jpn. J. Appl. Phys.*, **51** (2012) 055802.
381. S. Zhu, Y. Song, X. Zhao, J. Shao, J. Zhang, B. Yang, “The photoluminescence mechanism in carbon dots (graphene quantum dots, carbon nanodots, and polymer dots): current state and future perspective”, *Nano Res.*, **8**(2015)355–381.
382. K.E. Nachman, P.A Baron, G. Raber, K.A. Francesconi, A. Navas-Acien, D.C. Love, “Roxarsone, Inorganic arsenic, and other Arsenic species in chicken: A US-based market basket sample”, *Environ. Health Perspect.*, **121**(2013)818–824.
383. S. Xu, F.P. Sabino, A. Janotti, D.B. Chase, D.L. Sparks, J.F. Rabolt, “Unique surface enhanced raman scattering substrate for the study of arsenic speciation and detection”, *J. Phys. Chem. A*, **122**(2018)9474–9482.

References

384. J.F. Stoltz, E. Perera, B. Kilonzo, B. Kail, B. Crable, E. Fisher, M. Ranganathan, L. Wormer, P. Basu, “Biotransformation of 3-nitro-4-hydroxybenzene arsonic acid (roxarsone) and release of inorganic arsenic by Clostridium species”, *Environ. Sci. Technol.*, **41**(2007)818–823.
385. S. Su, C. Cao, Y. Zhao, D.D. Dionysiou, “Efficient transformation and elimination of roxarsone and its metabolites by a new α -FeOOH@ GCA activating persulfate system under UV irradiation with subsequent As (V) recovery”, *Appl. Catal. B*, **245**(2019)207–219.
386. K.P. Mangalgiri, A. Adak, L. Blaney, “Organoarsenicals in poultry litter: Detection, fate, and toxicity”, *Environ. Int.*, **75**(2015)68–80.
387. C.J. Chen, T.L. Kuo, M.M. Wu, “Arsenic and cancers”, *Lancet*, **331**(1988)414–415.
388. M.M. Wu, T.L. Kuo, Y.H. Hwang, C.J. Chen, “Dose-response relation between arsenic concentration in well water and mortality from cancers and vascular diseases”, *Am. J. Epidemiol.*, **130**(1989)1123–1132.
389. C.J. Chen, C.W. Chen, M.M. Wu, T.L. Kuo, “Cancer potential in liver, lung, bladder and kidney due to ingested inorganic arsenic in drinking water”, *Br. J. Cancer*, **66**(1992,)888–892.
390. Y. Chen, J.H. Graziano, F. Parvez, M. Liu, V. Slavkovich, T. Kalra, M. Argos, T. Islam, A. Ahmed, M. Rakibuz-Zaman, R. Hasan, G. Sarwar, D. Levy, A. Van Geen, H. Ahsan, “Arsenic exposure from drinking water and mortality from cardiovascular disease in Bangladesh: prospective cohort study”, *BMJ*, **342**(2011)d2431.
391. G.A. Wasserman, X. Liu, F. Parvez, H. Ahsan, P. Factor-Litvak, J. Kline, A. Van Geen, V. Slavkovich, N.J. Loiacono, D. Levy, Z. Cheng, J.H. Graziano, “Water arsenic exposure and intellectual function in 6-year-old children in Araihazar, Bangladesh”, *Environ. Health Perspect.*, **115**(2007) 285–289.
392. A. Navas-Acien, E.K. Silbergeld, R. Pastor-Barriuso, E. Guallar, “Arsenic exposure and prevalence of type 2 diabetes in US adults”, *J. Am. Med. Assoc.* **300**(2008) 814–822.
393. S.A. Ahmad, M.H. Sayed, S. Barua, M.H. Khan, M.H. Faruquee, A. Jalil, S.A. Hadi, H.K. Talukder, “Arsenic in drinking water and pregnancy outcomes”, *Environ. Health Perspect.*, **109**(2001)629–631.

References

394. J.C. Davey, J.E. Bodwell, J.A. Gosse, J.W. Hamilton, “Arsenic as endocrine disruptor: effects of arsenic on estrogen receptor-mediated gene expression in vivo and in cell culture”, *Toxicol. Sci.*, **98**(2007)75–86.
395. M. Akilarasan, S. Kogularasu, S.-M. Chen, M. Govindasamy, T.W. Chen, A.M. Ali, F.M.A. Al-Hemaid, M.S. Elshikh, M.A. Farah, “A Green Approach to the Synthesis of Well-Structured Prussian Blue Cubes for the Effective Electrocatalytic Reduction of Antiprotozoal Agent Coccidiostat Nicarbazin”, *Electroanalysis*, **30**(2018) 1669–1677.
396. U. Rajaji, T.-W. Chen, S. Chinnapaiyana, S.-M. Chena, M. Govindasamy, “Two-dimensional Binary Nanosheets ($\text{Bi}_2\text{Te}_3@g\text{-C}_3\text{N}_4$): Application toward the Electrochemical Detection of Food Toxic Chemical”, *Anal. Chim. Acta* **1125**(2020)220–230.
397. M. Govindasamy, S.-F. Wang, A. Almahri, U. Rajaji, “Effects of sonochemical approach and induced contraction of core–shell bismuth sulfide/graphitic carbon nitride as an efficient electrode material for electrocatalytic detection of antibiotic drug in foodstuffs”, *Ultrason. Sonochem.*, **72**(2021)No. 105445.
398. U. Rajaji, S. Chinnapaiyana, S.-M. Chen, G. Mani, A.A. Alothman, R.A. Alshgari, “Bismuth telluride decorated on graphitic carbon nitrides based binary nanosheets: Its application in the electrochemical determination of salbutamol (feed additive) in meat samples”, *J. Hazard. Mater.*, **413**(2021)125265.
399. M. Ramalingam, T. Kokulnathan, P.-C.Tsai1, M.V. Arasu, N.A. Al-Dhabi, K. Prakasham, V.K. Ponnusamy, “Ultrasonicationassisted synthesis of gold nanoparticles decorated ultrathin graphitic carbon nitride nanosheets as a highly efficient electrocatalyst for sensitive analysis of caffeic acid in food samples”, *Appl. Nanosci.* , **173**(2021).
400. M. Govindasamy, S.-Fu.Wang, R. Jothiramalingam, S.N. Ibrahim, H.A. Al-lohedan, “A screen-printed electrode modified with tungsten disulfide nanosheets for nanomolar detection of the arsenic drug roxarsone”, *Microchim. Acta*, **186**(2019) 420.
401. T.-W. Chen, U. Rajaji, S.-M. Chena, S. Chinnapaiyan, R.J. Ramalingam, “Facile synthesis of mesoporous WS_2 nanorods decorated N-doped RGO network modified electrode as portable electrochemical sensing platform for sensitive detection of toxic antibiotic in biological and pharmaceutical samples”, *Ultrason. Sonochem.*, **56**(2019) 430–436.

References

402. M. Govindasamy, U. Rajaji, S.-F. Wanga, Y.-J. Changa, R.J. Ramalingam, C.-Y. Chan, “Investigation of sonochemically synthesized sphere-like metal tungstate nanocrystals decorated activated carbon sheets network and its application towards highly sensitive detection of arsenic drug in biological samples”, *J. Taiwan Inst. Chem. Eng.*, **114**(2020) 211–219.
403. T. Kokulnathan, S.-M. Chen, “Design and Construction of theGadolinium Oxide Nanorod-Embedded Graphene Aerogel: A Potential Application for Electrochemical Detection of Postharvest Fungicide”, *ACS Appl. Mater. Interfaces*, **12**(2020)16216–16226.
404. A. Tsiamis, F.D. Sanchez, N. Hartikainen, M. Chung, S. Mitra, Y.C. Lim, H. L. Tan, N. Radacsi, “Graphene Wrapping of Electrospun Nanofibers for Enhanced Electrochemical Sensing”, *ACS Omega*, **6**(2021)10568–10577.
405. Y. Hei, X. Li, X. Zhou, J. Liu, M.Hassan, S.Zhang, Y.Yang, X.Bo, H.-L.Wang, M. Zhou, “Cost-effective synthesis of three-dimensional nitrogen-doped nanostructured carbons with hierarchical architectures from the biomass of sea-tangle for the amperometric determination of ascorbic acid”, *Anal. Chim. Acta*, **1029**(2018)15–23.
406. R. Madhu, C.Karuppiah, S.M. Chen, P.Veerakumar, S.B. Liu, “Electrochemical detection of 4-nitrophenol based on biomass-derived activated carbon”, *Anal. Methods* **6**(2014)5274–5528.
407. V. Veeramani, R.Madhu, S.-M.Chen, B.-S.Lou, P.Jayabal, V. S. Vasantha, “Biomass-derived functional porous carbons as novel electrode material for the practical detection of biomolecules in human serum and snail hemolymph”, *Sci. Rep.*, **5**(2015) 10141.
408. T. Zhang, W.P. Walawendera, L.T. Fan, M. Fan, D. Daugaard, R.C. Brown, “Preparation of activated carbon from the forest and agricultural residues through CO₂ activation”, *Chem. Eng. J.*, **105**(2004)53–59.
409. G. San Miguel, S.D. Lambert, N.J.D. Graham, “Thermal regeneration of granular activated carbons using inert atmospheric conditions”, *Environ. Technol.*, **23**(2002)1337–1346.
410. I.Hamadneh, R.A. Abu-Zurayk, A.H. Al-Dujaili, “Removal of phenolic compounds from aqueous solution using MgCl₂-impregnated activated carbons derived from olive husk: the effect of chemical structures”, *Water Sci. Technol.*, **81**(2020)2351–2367.

References

411. K.Y. Foo, B.H. Hameed, “Preparation, characterization and evaluation of adsorptive properties of orange peel based activated carbon via microwave-induced K_2CO_3 activation”, *Bioresour. Technol.*, **104**(2012)679–686.
412. A. Hai, G. Bharatha, K. Ram Babua, H. Taher, Mu. Naushad, F. Banat, “Date seeds biomass-derived activated carbon for efficient removal of NaCl from saline solution”, *Process Saf. Environ.Prot.*, **129**(2019)103–111.
413. S. Uçar, M. Erdem, T.Tay, S. Karagöz, “Removal of lead (II)and nickel (II) ions from aqueous solution using activated carbon prepared from rapeseed oil cake by Na_2CO_3 activation”, *Clean Technol. Environ. Policy*, **17**(2015)747–756.
414. L. Hu, Q. Zhu, Q. Wu, D. Li, Z. An, B.Xu, “Natural Biomass-Derived Hierarchical Porous Carbon Synthesized by an in Situ Hard Template Coupled with NaOH Activation for Ultrahigh Rate Supercapacitors”, *ACS Sustainable Chem. Eng.*, **6**(2018)13949–13959.
415. S. Uçar, M. Erdem, T. Tay, S. Karagöz, “Preparation and characterization of activated carbon produced from pomegranate seeds by $ZnCl_2$ activation”, *Appl. Surf. Sci.*, **255**(2009)8890–8896.
416. V. Gehrke, G.K. Maron, L.d.S. Rodrigues, J. H. Alano, C.M.P.d. Pereira, M.O. Orlandi, N.L.V. Carreño, “Facile preparation of a novel biomass-derived H_3PO_4 and $Mn(NO_3)_2$ activated carbon from citrus bergamia peels for high-performance supercapacitors”, *Mater. Today Commun.*, **26**(2021)101779.
417. N.K. Komal, P.K. Singh, R. Singh, V.K. Shukla, “‘Kusha’ (eragrostiscynosuroids): A source of activated carbon for energy storage device” *Mater. Today: Proc.*, **34**(2021) 702–704.
418. Z. Gao, Y.Zhang, N.Song, X.Li, “Biomass-derived renewable carbon materials for electrochemical energy storage”, *Mater. Res. Lett.* , **5**(2017)69–88.
419. P. Pang, F.Yan, M. Chen, H. Li, Y. Zhang, H. Wang, Z. Wu, W. Yang, “Promising biomass-derived activated carbon and gold nanoparticle nanocomposites as a novel electrode material electrochemical detection of rutin. *RSC Adv.* **6**(2016) 90446–90454.
420. J. Deng, T. Xiong, F. Xu, M. Li, C. Han, Y. Gong, H. Wang, Y. Wang, “Inspired by bread leavening: one-pot synthesis of hierarchically porous carbon for supercapacitors”, *Green Chem.*, **17**(2015)4053–4060.
421. R. Madhu, K.V. Sankar, S.-M.Chen, R.K. Selvan, “Ecofriendly synthesis of activated carbon from dead mango leaves for the ultrahigh sensitive detection of

References

- toxic heavy metal ions and energy storage applications”, RSC Adv., **4**(2014)1225–1233.
422. X. Liu, Y. Zhou, W. Zhou, L. Li, S. Huang, S. Chen, “Biomass-derived nitrogen self-doped porous carbon as effective metal-free catalysts for oxygen reduction reaction”, Nanoscale, **7**(2015)6136–6142.
423. U. Garg, M. P. Kaur, G.K. Jawa, D. Sud, V.K. Garg, “Removal of cadmium (II) from aqueous solutions by adsorption on agricultural waste biomass”, J. Hazard. Mater. ,**154**(2008)1149–1157.
424. W. S. Wan Ngah, M.A.K.M Hanafiah, “Removal of heavy metal ions from wastewater by chemically modified plant wastes as adsorbents: A review”, Bioresour. Technol. **99**(2008)3935–3948.
425. N. Yoshizawa, K. Maruyama, Y. Yamada, M.Zielinska-Blajet, “XRD evaluation of CO₂ activation process of coal- and coconut shell based carbons”, Fuel, **79**(2000)1461–1466.
426. A.C. Ferrari, J. Robertson, “Interpretation of Raman spectra of disordered and amorphous carbon”, Phys. Rev. B, **61**(2000) 14095.
427. J.S. Park, A. Reina, R.Saito, J.Kong, G.Dresselhaus, M.S. Dresselhaus, “G' band Raman spectra of single, double and triple layer graphene”, Carbon **47**(2009) 1303–1310.
428. R. Pandey, R.L. Prasad, N.G. Ansari, R.C. Murthy, “Utilization of NaOH modified Desmostachyabipinnata(Kush Grass)Leaves & Bambusaarundinacea(Bamboo) Leaves for Cd(II) removal from aqueous solution”, J. Environ. Chem. Eng., **3**(2015)593–601.
429. V. Veeramani, M. Sivakumar, S.-M. Chen, R. Madhu, H.R. Alamri, Z.A. Alothman, M.S.A. Hossain, C.-K. Chen, Y. Yamauchi, N. Miyamoto, K.C-W. Wu, “Lignocellulosic biomass-derived, graphene sheet-like porous activated carbon for electrochemical supercapacitor and catechin sensing”, RSC Adv., **7**(2017)45668.
430. T. Sha, X. Li, J. Liu, M. Sun, N. Wang, X. Bo, Y. Guo, Z. Hu, M. Zhou, “Biomass waste derived carbon nanoballs aggregation networks-based aerogels as electrode material for electrochemical sensing” Sens. Actua. B, **277**(2018)195–204.
431. L. Bai, R. Yuan, Y. Chai, Y. Yuan, Y. Wang, S. Xie, “Direct electrochemistry and electrocatalysis of glucose oxidase-functionalized bioconjugate as a trace label for ultrasensitive detection of thrombin”, Chem. Commun. , **48**(2012)10972–10974.

References

432. A. Kumar, A.C Pandey, R. Prakash, “Electro-oxidation of formic acid using poly indole-SnO₂ nanocomposite”, Catal. Sci. Technol., **2**(2012)2533–2538.
433. C.J. Verma, A. Kumar, R.P. Ojha, R. Prakash, “Au-V2O5/Polyindole composite: An approach for ORR in different electrolytes”, J. Electroanal. Chem., **861**(2020)113959–113968.
434. X. Yu, X. Han, C. Chang, Y. Hu, C. (Charles) Xu, S. Fang, “Corncob-derived activated carbon for roxarsone removal from aqueous solution: isotherms, kinetics, and mechanism”, Environ. Sci. Pollut. Res., **27**(2020)15785–15797.

List of Publications

Research Publications

1. **Nikhil**, Rajiv K. Pandey*, Praveen Kumar Sahu, Manish Kumar Singh and Rajiv Prakash* “Fast grown self-assembled polythiophene/grapheneoxide nanocomposite thin films at air–liquid interface with high mobility used in polymer thin film transistors†,” **Journal of Materials Chemistry C**, 6(2018) 9981—9989.
 2. **Nikhil** ,Ankit Verma, Rajiv Prakash, “Self-Assembled thin film of Thienothiophene Polymer-Reduced Graphene Oxide nano-Composite at air-liquid interface in Organic Field Effect Transistor Fabrication”**(to be communicated)**
 3. **Nikhil** ,Ankit Verma, Rajiv Prakash, “Poly(2,5-bis(3-alkylthiophen-2-yl)thieno[3,2-*b*]thiophene)-Graphene quantum dots nanocomposite floating film at air-liquid interface in organic thin-film transistor application” **(to be communicated)**
 4. **Nikhil**, S. K. Srivastava, Amit Srivastava, Monika Srivastava,* and Rajiv Prakash* “Electrochemical Sensing of Roxarsone on Natural Biomass-Derived Two-Dimensional Carbon Material as Promising Electrode Material,” **ACS Omega**, 7(2022) 2908–2917
 5. **Nikhil**, Gopal Ji*, Rajiv Prakash “Composites of Donor- π -Acceptor type configured organic compound and porous ZnO nano sheets as corrosion inhibitors of copper in chloride environment,” **Journal of Molecular Liquids** 280 (2019) 160–172.
 6. **Nikhil**, Gopal Ji*, Rajiv Prakash “Hydrothermal synthesis of Zn-Mg based layered double hydroxide coating over copper for its corrosion prevention in both chloride and hydroxide media,” **International Journal of Minerals, Metallurgy and Materials**, 28 (2021) 1991–2000
 7. **Nikhil**, Manvendra Kumar Singh, GopalJi*,Rajiv Prakash “Investigation on the effects of cooling rate on surface Texture, corrosion behaviour and hardness of pure copper,” **Materials Today: Proceedings**, 47 (2021) 6693–6695.
 8. Monika Srivastava , S.K. Srivastava ,**Nikhil**, Gopal Ji*, Rajiv Prakash* “Chitosan based new nanocomposites for corrosion protection of mild steel in aggressive chloride media,” **International Journal of Biological Macromolecules**, 140 (2019) 177–187.
-

List of Publications

Conferences

1. National conference on Advanced Nanomaterials and their Applications (ANA2018), December 2018, MNNIT Allahabad, U.P. (**Poster Presentation**).
2. International conference on Emerging Trends in Chemical Sciences, February 2018, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur, U.P. (**Poster Presentation**).
3. International Conference on Recent Advances in Design, Materials and Manufacturing (ICRADMM 2020), October 2019, Amity School of Engineering and Technology, Amity University Madhya Pradesh, Gwalior (**Poster Presentation**).
4. International e-Conference on Nanomaterials and Nanoengineering APA Nanoforum-2022, February 2022, Certificate ID:427363916, (**Poster Presentation**).
5. International e-Conference on Nanomaterials and Nanoengineering APA Nanoforum-2022, February 2022, Certificate ID :882416435 (**Poster Presentation**).

Honours Received

1. **Best Paper Presentation** certificate for the paper titled “**Intentional water quenching treatment of copper to investigate the changes in its microstructure, corrosion behaviour and hardness**” in the category Metals and Alloys in the International Conference on Recent Advances in Design, Materials and Manufacturing (ICRADMM 2020) October 2019, Amity School of Engineering and Technology, Amity University Madhya Pradesh, Gwalior (**Poster Presentation**).
2. **Best Paper Presentation** certificate for the paper titled “**Fast grown self-assembled polythiophene/graphene oxide nanocomposite thin films at air-liquid interface with high mobility used in polymer thin film transistors†**” in the category of 13th International e-Conference of Advancements in Polymeric Materials(APM2022),CIPET:SARP,Chennai,March2022(**PosterPresentation**)
•

List of Publications

