Andrzej Huczko **Nanotechnologia: Dlaczego…?**

1. Bandyopadhyay A.K., Nano Materials, New Age International Ltd. Publ., New Delhi 2008.

2. Ruda H.E. i in., Nanoscale Res. Lett., 1, 2006, 99. https://doi.org/10.1007/s11671-006-9016-6

3. Wagner R., Ellis W., Appl. Phys. Lett., 4, 1964, 89. https://doi.org/10.1063/1.1753975

4. Givargizov E., J. Crystal Growth, 31, 1975, 20. https://doi.org/10.1016/0022-0248(75)90105-0

5. Kubo R., J. Phys. Soc. Jap., 17, 1962, 975. https://doi.org/10.1143/JPSJ.17.975

6. Huczko A., Bystrzejewski M., Fulereny. 20 lat później, Wydawnictwa Uniwersytetu Warszawskiego, Warszawa 2007.

7. Drexler K.E., Nanosystems: Molecular Machinery, Manufacturing and Computation, John Wiley & Sons, New York 1992.

8. Kroto H.W. i in., Nature, 318, 1985, 162. https://doi.org/10.1038/318162a0

9. Iijima S., Nature, 354, 1991, 56. https://doi.org/10.1038/354056a0

10. Seraphin S., J. Electrochem. Soc., 142, 1995, 290. https://doi.org/10.1149/1.2043908

11. Geim A.K. i in., Science, 306, 2004, 666. https://doi.org/10.1126/science.1102896

12. Lahlil S. i in., Appl. Phys. A, 98, 2010, 1. https://doi.org/10.1007/s00339-009-5454-1

13. Kochmann W. i in., J. Alloys Comp., 372, 2004, L15. https://doi.org/10.1016/S0925-8388(03)01127-7

14. Reibold M. i in., J. Mater. Res., 97, 2006, 1172. https://doi.org/10.3139/146.101355

15. Levin A.A. i in., Cryst. Res. Technol., 40, 2005, 905. https://doi.org/10.1002/crat.200410456

16. Reibold M. i in., Nature, 444, 2006, 286. https://doi.org/10.1038/444286a

17. www.cientifica.com.

18. Prucnal S. i in., V Krajowa Konferencja Nanotechnologii NANO 2011, 3-7 lipca 2011, Gdańsk, Książka streszczeń, s. 185.

19. Zettl A. i in., Life, 49, 2000, 105. https://doi.org/10.1080/15216540050022403

20. Bland S., Materials Today, 14, 2011, 131. https://doi.org/10.1016/S1369-7021(11)70080-3

21. Yan H. i in., Nature, 470, 2011, 240. https://doi.org/10.1038/nature09749

22. Winkless L., Cuenat A., Materials Today, 14, 2011, 55. https://doi.org/10.1016/S1369-7021(11)70040-2

23. Nanotechnologia, kosmetyki, chemia supramolekularna (red. Schroeder G.), Cursiva, Poznań 2010.

24. Przybyszewska M., Zaborski M., Przem. Chem., 88, 2009, 15.

25. Wosicka H., Lulek J., Pol. J. Cosmetol., 12, 2009, 23.

26. Orłowski P. i in., V Krajowa Konferencja Nanotechnologii NANO 2011, 3-7 lipca 2011, Gdańsk, Książka streszczeń, s. 78.

27. Maliszewska-Mazur M. i in., V Krajowa Konferencja Nanotechnologii NANO 2011, 3-7 lipca 2011, Gdańsk, Książka streszczeń, s. 154.

28. Mikulska K. i in., V Krajowa Konferencja Nanotechnologii NANO 2011, 3-7 lipca 2011, Gdańsk, Książka streszczeń, s. 167.

29. Tomaszewska E. i in., V Krajowa Konferencja Nanotechnologii NANO 2011, 3-7 lipca 2011, Gdańsk, Książka streszczeń, s. 209.

30. www.e-Dentico.pl.

31. Behabtu N. i in., Science, 339, 2013, 182. https://doi.org/10.1126/science.1228061

32. Dodziuk H., Orbital, 2011, 71.

33. Kim C.-D. i in., Carbon, 47, 2009, 1605. https://doi.org/10.1016/j.carbon.2009.02.009

34. Schniepp H.C. i in., J. Phys. Chem. B Letters, 110, 2006, 8353. https://doi.org/10.1021/jp060936f

35. Li N. i in., Carbon, 48, 2010, 255. https://doi.org/10.1016/j.carbon.2009.09.013

36. Subrahmanyasm K.S. i in., J. Phys. Chem. C Letters, 113, 2010, 4257.

37. Wu Y. i in., Nano Res., 3, 2010, 661. https://doi.org/10.1007/s12274-010-0027-3

38. Wang X. i in., Chem. Vap. Deposition, 15, 2009, 53.

39. Obraztsov A.N. i in., Carbon, 45, 2007, 2017. https://doi.org/10.1016/j.carbon.2007.05.028

40. Nyapshaev I.A. i in., Physics of Solid State, 51, 2009, 1054. https://doi.org/10.1134/S1063783409050254

41. Kosynkin D.C. i in.,. Nature, 458, 2009, 872. https://doi.org/10.1038/nature07872

42. Wu Y. i in., Adv. Mater. 14, 2002, 64.

43. Hiramatsu M. i in., Appl. Phys. Lett. 84, 2004, 4708. https://doi.org/10.1063/1.1762702

44. Wu Y. i in., J. Mater. Chem., 14, 2004, 469. https://doi.org/10.1039/b311682d

45. Chuang A.T.H. i in., Diam. Relat. Mater., 15, 2006, 1103.

46. Sata G. i in., Jpn. J. Appl. Phys., 45, 2006, 5210.

47. Nishimura K. i in., IEICE Trans. Elektron., E86-C, 2003, 821.

48. Zhu M. i in., Diam. Relat. Mater., 16, 2007, 196.

49. Boehm H.P. i in., Pure Appl. Chem., 66, 1994, 1893. https://doi.org/10.1351/pac199466091893

50. Huczko A., Nanorurki węglowe. Czarne diamenty XX wieku, BEL Studio, Warszawa 2004.

51. Lin Y I in., Phys. Rev. Lett., 107, 2011, 175504.

52. Hu W. i in., ACS Nano, 4, 2010, 4317. https://doi.org/10.1021/nn101097v

53. www.futuremarketsinc.com.

54. Cohen-Tanugi D., Grossman J.C., Nano Lett., 12, 2012, 3602. https://doi.org/10.1021/nl3012853

55. Drahushuk L.W., Strano M.S., Langmuir, 28, 2012, 16671. https://doi.org/10.1021/la303468r

56. O'Hern S.C. i in., ACS Nano, 6, 2012, 10130. https://doi.org/10.1021/nn303869m

57. Sun P. i in., ACS Nano, 7, 2013, 428. https://doi.org/10.1021/nn304471w

58. Dreyer D.R. i in., Angew. Chem., Int. Ed., 49, 2010, 9336. https://doi.org/10.1002/anie.201003024

59. Editorial, Carbon, 65, 2013, 1. https://doi.org/10.1016/S1053-8119(12)01120-2

60. Boehm H.P. i in., Carbon, 24, 1986, 2431. https://doi.org/10.1016/0008-6223(86)90126-0

61. Fitzer E. i in., Pure Appl. Chem., 67, 1995, 473. https://doi.org/10.1351/pac199567030473

62. Schafhaeutl C., J. Prakt. Chem., 21, 1840, 129. https://doi.org/10.1002/prac.18400210117

63. Schafhaeutl C., Phil. Mag., 16, 1840, 570. https://doi.org/10.1080/14786444008650094

64. Graphene. Synthesis, Properties, and Phenomena (red. Rao C.N.R., Sood A.K.), Wiley-VCH, Weinheim 2012.

Andrzej Huczko **Otrzymywanie grafenu** .

1. www.grapheneshop.pl.

2. Krueger A., Carbon Materials and Nanotechnology, Wiley-VCH, Weinheim 2010. https://doi.org/10.1002/9783527629602

3. Yumura M., Kagaku Kogaku, 63, 1999, 321.

4. Novoselov K.S. i in., Science, 306, 2004, 666. https://doi.org/10.1126/science.1102896

5. Novoselov K.S. i in., Proc. Nat. Acad. Sci., 102, 2005, 10451.

6. Novoselov K.S i in., Nature, 438, 2005, 197. https://doi.org/10.1038/nature04233

7. Geim A.K., Novoselov K.S., Nature Materials, 6, 2007, 183. https://doi.org/10.1038/nmat1849

8. Geim A.K., Science, 324, 2009, 1530. https://doi.org/10.1126/science.1158877

9. Trauzettel R., Postępy Fizyki, 58, 2007, 250.

10. Landau L.D., Phys. Z. Sovietunion, 11, 1937, 26.

11. Meyer J.C. i in., Nature, 446, 2007, 457. https://doi.org/10.1038/nature05599

12. Huczko A., Bystrzejewski M., Fulereny, Wydawnictwa Uniwersytetu Warszawskiego, Warszawa 2007.

13. Huczko A., Nanorurki węglowe. Czarne diamenty XXI wieku, Wyd. BEL Studio, Warszawa 2004.

14. Brodie B.C., Philos. Trans. Roy. Soc. London, 149, 1859, 249. https://doi.org/10.1098/rstl.1859.0013

15. Hofmann U., Z. Angew. Chem., 44, 1931, 841. https://doi.org/10.1002/ange.19310444102

16. Wallace P.R., Phys. Rev., 71, 1947, 632. https://doi.org/10.1103/PhysRev.71.622

17. von Boehm H.P. i in., Z. Naturforsch., 17b, 1962, 150. https://doi.org/10.1515/znb-1962-0302

18. von Boehm H.P. i in., Proceedings of the Fifth Conference on Carbon, Pergamon Press, Heidelberg 1962, s. 73. https://doi.org/10.1016/B978-0-08-009707-7.50013-3

19. Staudenmaier L., Ber. Dtsch. Chem. Ges., 31, 1899, 1481. https://doi.org/10.1002/cber.18980310237

20. Hofmann U., Frenzel A., Ber. Dtsch. Chem. Ges., 63, 1930, 1248. https://doi.org/10.1002/cber.19300630543

21. Hofmann U. i in., Liebigs Anorg. Chem., 510, 1934, l. https://doi.org/10.1002/jlac.19345100102

22. Hofmann U. i in., Z. Kristallogr., Mineralog. Petrog., Abt. A, 86, 1933, 340.

23. Hofmann U., Konig E., Z. Anorg. Allg. Chem., 234, 1937, 311. https://doi.org/10.1002/zaac.19372340405

24. Hofmann U., Holst R., Ber. Dtsch. Chem. Ges., 72, 1939, 754. https://doi.org/10.1002/cber.19390720417

25. Clauss A. i in., Z. Anorg. Allg. Chem., 291, 1957, 205. https://doi.org/10.1002/zaac.19572910502

26. Weiss Ar., Chem. Ber., 91, 1958, 487. https://doi.org/10.1002/cber.19580910305

27. Hofmann U., Koll.-Z., 169, 1960, 58. https://doi.org/10.1007/BF01502552

28. von Boehm H.P. i in., J. Chim. Phys., 58, 1961,141. https://doi.org/10.1051/jcp/1961580141

29. Hummers W.S., Offeman R. E., J. Am. Chem. Soc. 80, 1958, 1339. https://doi.org/10.1021/ja01539a017

30. Nazarov A.S. i in., Rus. J. Inorg. Chem., 21, 1976, 2273.

31. Okotrub A.V. i in., Phys. Stat. Solidi B, 249, 2012, 2620. https://doi.org/10.1002/pssb.201200143

32. Pei S., Cheng H.-M., Carbon, 50, 2012, 3210. https://doi.org/10.1016/j.carbon.2011.11.010

33. Stankovich S. i in., Carbon, 45, 2007, 1558. https://doi.org/10.1016/j.carbon.2007.02.034

34. Kohlschutter V., Haenni P., Z. Anorg. Allg. Chem., 105, 1919, 121. https://doi.org/10.1002/zaac.19191050109

35. Ruess G., Vogt F., Min. Chem., 7B, 1948, 222. https://doi.org/10.1007/BF01141527

36. von Borries B., Die Übermikroskopie, Verlag Saenger, Berlin 1949, ss. 194-195.

37. Peigney A. i in., Carbon, 39, 2001, 507. https://doi.org/10.1016/S0008-6223(00)00155-X

38. van Bommel A.J. i in., Surf. Sci., 48, 1975, 463. https://doi.org/10.1016/0039-6028(75)90419-7

39. Sprinkle M. i in., Phys. Stat. Solidi RRL, 3, 2009, A91. https://doi.org/10.1002/pssr.200903180

40. Forbeaux I. i in., Phys. Rev. B, 58, 1998, 16396. https://doi.org/10.1103/PhysRevB.58.16396

41. Hagstrom S. i in., Phys. Rev. Lett., 15, 1965, 491. https://doi.org/10.1103/PhysRevLett.15.491

42. Morgan A.E., Samorjai G.A., Surf. Sci., 12, 1968, 405.

43. May J.W., Surf. Sci., 17, 1969, 267. https://doi.org/10.1016/0039-6028(69)90227-1

44. Wakabayashi K., Phys. Rev. B, 64, 2001, 125428. https://doi.org/10.1103/PhysRevB.64.125428

45. Avouris P., Dimitrakopoulos C., Materials Today, 15, 2012, 86. https://doi.org/10.1016/S1369-7021(12)70044-5

46. Bonaccorso F. i in., Materials Today, 15, 2012, 564. https://doi.org/10.1016/S1369-7021(13)70014-2

47. Wu Y.H. i in., J. Appl. Phys., 108, 2010, 071301. https://doi.org/10.1063/1.3460809

48. Choi W., Lee J.-W., Graphene: Synthesis and Application, CRC Press, Taylor & Francis Group, Boca Raton 2012.

49. Wang G. i in., J. Phys. Chem., 112, 2008, 8192. https://doi.org/10.1021/jp710931h

50. Cai M. i in., J. Mater. Chem., 22, 2012, 24992. https://doi.org/10.1039/c2jm34517j

51. Niyogi S. i in., J. Am. Chem. Soc., 128, 2006, 7720. https://doi.org/10.1021/ja060680r

52. Lu X. i in., Nanotechnology, 10, 1999, 269. https://doi.org/10.1088/0957-4484/10/3/308

53. Neugebauer P. i in., Phys. Rev. Lett., 103, 2009, 136403. https://doi.org/10.1103/PhysRevLett.103.159902

54. Shukla A. i in., Solid State Commun., 149, 2009, 718. https://doi.org/10.1016/j.ssc.2009.02.007

55. Moldt T. i in., ACS Nano, 5, 2011, 7700. https://doi.org/10.1021/nn202293f

56. Miyamoto Y. i in., Phys. Rev. Lett., 104, 2010, 208302. https://doi.org/10.1103/PhysRevLett.104.208302

57. Dhar S. i in., AIP Adv., 1, 2011, 022109. https://doi.org/10.1063/1.3584204

58. Dreyer D.R. i in., Angew. Chem., Int. Ed., 49, 2010, 9336. https://doi.org/10.1002/anie.201003024

59. Schniepp H.C. i in., J. Phys. Chem. B, 110, 2006, 8535. https://doi.org/10.1021/jp060936f

60. Jin Z. i in., Chem. Mater., 21, 2009, 3045. https://doi.org/10.1021/cm901601g

61. McAllister M.J. i in., Chem. Mater., 19, 2007, 4396. https://doi.org/10.1021/cm0630800

62. Wu Z.-S. i in., ACS Nano, 3, 2009, 411. https://doi.org/10.1021/nn900020u

63. Wu Y. i in., Nano Res., 3, 2010, 661. https://doi.org/10.1007/s12274-010-0027-3

64. Łabędź O. i in., 20th Symposium on Application of Plasma Processes, Tatranska Lomnica, Słowacja, 17-22.01.2015, Abstract Book, s. 63.

65. Nair R.R. i in., Small, 6, 2010, 2077. https://doi.org/10.1002/smll.201000680

66. Huczko A. i in., Synteza spaleniowa materiałów nanostrukturalnych, Wyd. UW, Warszawa 2011.

67. Merzhanov A.G., Borovinskaya I.P., Dokl. AN SSSR, 204, 1972, 366.

68. Huczko A. i in., J. Phys. Chem. B, 107, 2003, 2519. https://doi.org/10.1021/jp022183c

69. Huczko A. i in., Crystal Res. Techn., 40, 2005, 334. https://doi.org/10.1002/crat.200410347

70. Cudziło S. i in., Carbon, 43, 2005, 1778. https://doi.org/10.1016/j.carbon.2005.01.020

71. Huczko A. i in., J. Phys. Chem. B, 109, 2005,16244. https://doi.org/10.1021/jp050837m

72. Huczko A. i in., Phys. Stat. Solidi B, 243, 2006, 3297. https://doi.org/10.1002/pssb.200669160

73. Huczko A. i in., J. Phys.: Conden. Matter 19, 2007, 395022. https://doi.org/10.1088/0953-8984/19/39/395022

74. Busiakiewicz A. i in., Surf. Sci., 602, 2008, 316. https://doi.org/10.1016/j.susc.2007.10.020

75. Busiakiewicz A. i in., Appl. Surf. Sci., 254, 2008, 4268. https://doi.org/10.1016/j.apsusc.2008.01.044

76. Busiakiewicz A. i in., Phys. Stat. Solidi B, 245, 2008, 2094.

77. Takahashi K. i in., High Temp. High Press., 37, 2008, 119012.

78. Huczko A. i in., Phys. Stat. Solidi B, 246, 2009, 2806. https://doi.org/10.1002/pssb.200982321

79. Busiakiewicz A. i in., Acta Physicae Superficierum, XI, 2009, 73.

80. Dyjak S. i in., J. Mater. Chem. A, 3, 2015, 9621. https://doi.org/10.1039/C5TA00201J

81. Koch E.-C., DE Patent 19,964,172, Niemcy, 1999.

82. Koch E.-C., Z. Naturforsch., 56b, 2001, 512.

83. Dąbrowska A. i in., Phys. Stat. Solidi B, 248, 2011, 2704. https://doi.org/10.1002/pssb.201100054

84. Dąbrowska A. i in., Phys. Stat. Solidi B, 249, 2012, 2373. https://doi.org/10.1002/pssb.201200114

85. Huczko A. i in., Phys. Stat. Solidi B, 251, 2014, 2563. https://doi.org/10.1002/pssb.201451163

86. Chen L. i in., RSC Adv., 5, 2015, 40148. https://doi.org/10.1039/C5RA00910C

87. Hu Y.H., Huo Y., J. Phys. Chem A, 115, 2011, 11678. https://doi.org/10.1021/jp205499e

88. Szala M., Fullerenes, Nanotubes, and Carbon Nanostructures, 21, 2013, 879. https://doi.org/10.1080/1536383X.2012.684184

89. Huczko A. i in., XXIXth IWEPNM "Molecular Nanostructures", Kirchberg, Austria, 7-14 March 2015, Abstract Book, s. 85.

90. Jessop P.G. i in., Nature, 368, 1994, 231. https://doi.org/10.1038/368231a0

91. Tamaura Y., Tabata M., Nature, 346, 1990, 255. https://doi.org/10.1038/346255a0

92. Lou Z.S. i in., Carbon, 42, 2004, 229. https://doi.org/10.1016/j.carbon.2003.10.012

93. Qian W. i in., Carbon, 44, 2006, 1298. https://doi.org/10.1016/j.carbon.2006.01.015

94. Xie Y. i in., Carbon, 48, 2010, 2023. https://doi.org/10.1016/j.carbon.2010.02.010

95. Xie Y. i in., Carbon, 47, 2009, 2290. https://doi.org/10.1016/j.carbon.2009.04.024

96. Dickinson B.W.O i in., US Patent 8377408 B2, 19.02.2013.

97. WO 201 303 627, 14.03.2013. https://doi.org/10.4074/S0013754513003029

98. Chakrabarti A. i in., J. Mater. Chem., 21, 2011, 9491. https://doi.org/10.1039/c1jm11227a

99. Lou Z. i in., Carbon, 41, 2003, 3063. https://doi.org/10.1016/S0008-6223(03)00335-X

100. Chen J. i in., J. Phys. D: Appl. Phys., 39, 2006, 1472. https://doi.org/10.1088/0022-3727/39/8/002

101. Zhao J. i in., Carbon, 50, 2012, 4939. https://doi.org/10.1016/j.carbon.2012.06.024

102. Wang Q. i in., Green Chem., 7, 2005, 733. https://doi.org/10.1039/b506890h

103. Manukyan K.V. i in., Carbon, 62, 2013, 302. https://doi.org/10.1016/j.carbon.2013.06.014

104. Huczko A. i in., Conference NANO 2015 "Nanotechnology and Nanomaterials", 26-29 sierpnia 2015, Lwów, Ukraina, Książka streszczeń, s. 247.

105. Kurcz M., Huczko A., I Krajowa Konferencja "Grafen i inne materiały 2D", Szczecin, 27-29.09.2015.

106. Ho M.-W., Report of Institute of Science in Society, 07/08/2013.

107. Shafirovich E.Y. i in., J. Propul. Power, 9, 1993, 297.

108. Albiniak A. i in., Carbon, 34, 1996, 1329. https://doi.org/10.1016/S0008-6223(96)00066-8

109. Petitjean D. i in., Carbon, 32, 1994, 461. https://doi.org/10.1016/0008-6223(94)90167-8

110. Petitjean D. i in., Mol. Cryst. Liq. Cryst., 245, 1994, 213.

111. Chung D.D.L., J. Mater. Sci., 22, 1987, 4190. https://doi.org/10.1007/BF01132008

112. Tryba B. i in., Mol. Cryst. Liq. Cryst., 340, 2000, 249.

113. Furdin G., Fuel, 77, 1998, 475. https://doi.org/10.1016/S0016-2361(97)00142-7

114. Toyoda M. i in., Desalination, 115, 1998, 199. https://doi.org/10.1016/S0011-9164(98)00038-1

115. Toyoda M. i in., Desalination, 128, 2000, 205. https://doi.org/10.1016/S0011-9164(00)00034-5

116. Inagaki M. i in., Desalination, 128, 2000, 213. https://doi.org/10.1016/S0011-9164(00)00035-7

117. Inagaki M. i in., Desalination, 128, 2000, 219. https://doi.org/10.1016/S0011-9164(00)00036-9

118. Toyoda M., Inagaki M., Carbon, 38, 2000, 199. https://doi.org/10.1016/S0008-6223(99)00174-8

119. Inagaki M. i in., Carbon Sci. Korea, 2, 2001, 1.

120. Inagaki M. i in., Tanso, 16, 2002, 25. https://doi.org/10.7209/tanso.2002.16

121. Shen W.E. i in., Carbon, 37, 1999, 351. https://doi.org/10.1016/S0008-6223(99)90001-5

122. Berger D., Maire J., Mater. Sci. Eng., 31, 1977, 335. https://doi.org/10.1016/0025-5416(77)90054-4

123. Union Carbide, US Patent No. 3,404,061; 1968.

124. Inagaki M. i in., J. Phys. Chem. Solids, 65, 2004, 133. https://doi.org/10.1016/j.jpcs.2003.10.007

125. Li X.L. i in., Science, 319, 2008, 1229. https://doi.org/10.1126/science.1150878

126. Li X.L. i in., Nat. Nanotechnol., 3, 2008, 538.

127. Choucair M. i in., Nat. Nanotechnol., 4, 2009, 30.

128. Hernandez Y. i in., Nat. Nanotechnol., 3, 2008, 563.

129. Green A.A., Hersam M.C., Nano Lett., 2009, doi:10.1021/nl902200b. https://doi.org/10.1021/nl902200b

130. Lotya M i in., J. Am. Chem. Soc., 131, 2009, 3611. https://doi.org/10.1021/ja807449u

131. Sun X. i in., Nano Res., 1, 2008, 203. https://doi.org/10.1007/s12274-008-8021-8

132. Green A.A., Hersam M.C., J. Phys. Chem. Lett., 1, 2010, 544. https://doi.org/10.1021/jz900235f

133. Green A.A., Hersam M.C., Nano Lett., 9, 2009, 4031. https://doi.org/10.1021/nl902200b

134. Tang Y.B. i in., Nano Lett., 9, 2009, 1374. https://doi.org/10.1021/nl803025e

135. Lotya M. i in., ACS Nano, 4, 2010, 3155. https://doi.org/10.1021/nn1005304

136. Marago O.M. i in., ACS Nano, 4, 2010, 7515. https://doi.org/10.1021/nn1018126

137. Khan U. i in., Small, 6, 2010, 864. https://doi.org/10.1002/smll.200902066

138. Torrisi F. i in., ACS Nano, 6, 2012, 2992. https://doi.org/10.1021/nn2044609

139. Blake P. i in., Nano Lett., 8, 2008, 1704. https://doi.org/10.1021/nl080649i

140. Ghatee M.H., Pakdel L., Fluid Phase Equil., 234, 2005, 101. https://doi.org/10.1016/j.fluid.2005.05.011

141. Behrens M. Z., Hoppe-Seyler's Z. Physiol. Chem., 258, 1939, 27. https://doi.org/10.1515/bchm2.1939.258.1.27

142. Sun X. i in., ACS Nano, 4, 2010, 3381. https://doi.org/10.1021/nn1000386

143. Nuvoli D. i in., J. Mater. Chem., 21, 2011, 3428. https://doi.org/10.1039/C0JM02461A

144. Hasan T. i in., Adv. Mater., 21, 2009, 3874. https://doi.org/10.1002/adma.200901122

145. Hasan T. i in., Phys. Stat. Solidi B, 247, 2010, 2953. https://doi.org/10.1002/pssb.201000339

146. Zheng W., Wong S.C., Comp. Sci. Tech., 63, 2003, 225. https://doi.org/10.1016/S0266-3538(02)00201-4

147. Brodie B.C., Ann. Chim. Phys., 59, 1860, 466.

148. Hyde F.S., J. Soc. Chem. Ind., 23, 1904, 300.

149. Cai W. i in., Science, 321, 2008, 1815. https://doi.org/10.1126/science.1162369

150. Lerf A. i in., J. Phys. Chem. B, 102, 1998, 4477. https://doi.org/10.1021/jp9731821

151. Lomeda J.R. i in., J. Am. Chem. Soc., 130, 2008 16201. https://doi.org/10.1021/ja806499w

152. Su C.-Y., i in., Chem. Mater., 21, 2009, 1679.

153. Mattevi C. i in., Adv. Funct. Mater., 19, 2009, 2577.

154. Becemil H.A. i in., ACS Nano, 2, 2008, 5674. https://doi.org/10.1021/nn800548e

155. Gomez-Navarro C. i in., Nano Lett., 7, 2007, 3499. https://doi.org/10.1021/nl072090c

156. Bourlinos A.B. i in., Langmuir, 19, 2003, 6050. https://doi.org/10.1021/la026525h

157. Chen Y. i in., Chem. Commun., 30, 2009, 4527. https://doi.org/10.1039/b907723e

158. Liao K.-H. i in., ACS Nano, 5, 2011, 1253. https://doi.org/10.1021/nn1028967

159. Wang H.J. i in., J. Am. Chem. Soc., 131, 2009, 9910. https://doi.org/10.1021/ja904251p

160. Sun L., Fugutsu B., Materials Letters, 109, 2013, 207. https://doi.org/10.1016/j.matlet.2013.07.072

161. Dreyer D.R. i in., Chem. Soc. Rev., 39, 2010, 228. https://doi.org/10.1039/B917103G

162. Pasricha R. i in., Materials Today, 15, 2012, 118. https://doi.org/10.1016/S1369-7021(12)70047-0

163. Stankovich S. i in., Nature, 442, 2006, 282. https://doi.org/10.1038/nature04969

164. Du X. i in., Carbon, 43, 2005, 195. https://doi.org/10.1016/j.carbon.2004.06.036

165. Car R., Parrinello M., Phys. Rev. Lett., 55, 1985, 2471. https://doi.org/10.1103/PhysRevLett.55.2471

166. Dey R.S. i in., Chem. Commun., 48, 2012, 1787. https://doi.org/10.1039/c2cc16031e

167. Luo J. i in., J. Am. Chem. Soc., 132, 2010, 17667. https://doi.org/10.1021/ja1078943

168. Rodriguez N.M., J. Mater. Res., 8, 1993, 3233. https://doi.org/10.1557/JMR.1993.3233

169. Rodriguez N.M. i in., Langmuir, 11, 1995, 3862. https://doi.org/10.1021/la00010a042

170. Kim F. i in., Adv. Mater., 22, 2010, 1954. https://doi.org/10.1002/adma.200903932

171. Dresselhaus M.S., Dresselhaus G., Adv. Phys., 51, 2002, 1. https://doi.org/10.1080/00018730110113644

172. Inagaki M., J. Mater. Res., 4, 1989, 1560. https://doi.org/10.1557/JMR.1989.1560

173. Boehm H.-P. i in., Pure Appl. Chem., 66, 1994, 1893. https://doi.org/10.1351/pac199466091893

174. Schaffault P., J. Prakt. Chemie, 21, 1841, 155.

175. Hoffman U., Feanzel A., Z. Elektrochem., 37, 1931, 613.

176. Vogel F.L. i in., Mat. Sci. Eng., 31, 1977, 261. https://doi.org/10.1016/0025-5416(77)90043-X

177. Foley G.M.T. i in., Solid State Comm., 24, 1977, 371. https://doi.org/10.1016/0038-1098(77)90985-1

178. Shioya J. i in., Synth. Met., 14, 1986, 113. https://doi.org/10.1111/j.1467-9809.1986.tb00458.x

179. Weller T.E. i in., Nature Phys., 1, 2005, 39. https://doi.org/10.1038/nphys0010

180. Deng W.-Q. i in., Phys. Rev. Lett., 92, 2004, 166103. https://doi.org/10.1103/PhysRevLett.92.166103

181. Watanabe N., Fukuda M., USA Patent 3536532, 1970.

182. Besenhard J.O., Carbon, 14, 1976, 111. https://doi.org/10.1016/0008-6223(76)90119-6

183. Nobuatsu W., Solid State Ionics, 1, 1980, 87.

184. Winter M. i in., Adv. Mater., 10, 1998, 725. https://doi.org/10.1002/(SICI)1521-4095(199807)10:10<725::AID-ADMA725>3.0.CO;2-Z

185. Yazami R., Electrochim. Acta, 45, 1999, 87. https://doi.org/10.1016/S0013-4686(99)00195-4

186. Yazami R., Touzain P., J. Power Sources, 9, 1983, 365. https://doi.org/10.1016/0378-7753(83)87040-2

187. Vogel F.L., J. Mater. Sci., 12, 1977, 982. https://doi.org/10.1007/BF00540981

188. Zhao W. i in., J. Am. Chem. Soc., 133, 2011, 5941. https://doi.org/10.1021/ja110939a

189. Kwon J. i in., Small, 7, 2011, 864. https://doi.org/10.1002/smll.201002005

190. Ang P.K. i in., ACS Nano, 3, 2009, 3587. https://doi.org/10.1021/nn901111s

191. Catheline A. i in., Chem. Commun., 47, 2011, 5470. https://doi.org/10.1039/c1cc11100k

192. Khrapach I. i in., Adv. Mater., 24, 2012, 2844. https://doi.org/10.1002/adma.201200489

193. Green A.A., Hersam M.C., Materials Today, 10, 2007, 59. https://doi.org/10.1016/S1369-7021(07)70309-7

194. Li D. i in., Nat. Nanotechnol., 3, 2008, 101.

195. Becerril H.A. i in., ACS Nano, 2, 2008, 463. https://doi.org/10.1021/nn700375n

196. Eda G. i in., Nat. Nanotechnol., 3, 2008, 270.

197. Paton K.R. i in., Nature Materials, 13, 2014, 624.

198. Melucci M. i in., Mater. Matters, 10, 2015, 45.

199. Toyoda M. i in., Carbon, 42, 2004, 2567. https://doi.org/10.1016/j.carbon.2004.05.051

200. Kim F. i in., Adv. Funct. Mater., 20, 2010, 2867. https://doi.org/10.1002/adfm.201000736

201. Singh V.V. i in., Adv. Funct. Mater., 22, 2012, 2352.

202. Lerf A. i in., J. Phys. Chem. B, 102, 1998, 4477. https://doi.org/10.1021/jp9731821

203. He H. i in., Chem. Phys. Lett., 287, 1998, 53. https://doi.org/10.1016/S0009-2614(98)00144-4

204. Robertson J., Phys. Stat. Solidi RRL, 3, 2009, A77. https://doi.org/10.1002/pssr.200950126

205. Badami D.V., Nature, 193, 1962, 569. https://doi.org/10.1038/193569a0

206. Acheson E.G., U.S. Patent 615648, 1896.

207. Charrier A. i in., J. Appl. Phys., 92, 2002, 2479. https://doi.org/10.1063/1.1498962

208. de Heer W.A. i in., J. Phys. Chem. B, 108, 2004, 19912. https://doi.org/10.1021/jp040650f

209. Berger C. i in., Bull. Am. Chem. Soc., 49, 2004, A17.

210. de Heer W. i in., Proc. Nat. Acad. Sci., 108, 2011, 16900. https://doi.org/10.1073/pnas.1105113108

211. de Heer W., arXiv:1012.1644v1.

212. Hass J. i in., Appl. Phys. Lett., 89, 2006, 143106. https://doi.org/10.1063/1.2358299

213. Hass J. i in., Phys. Rev. B, 78, 2008, 205424. https://doi.org/10.1103/PhysRevB.78.205424

214. Forbeaux I. i in., Appl. Surf. Sci., 162/163, 2000, 406. https://doi.org/10.1016/S0169-4332(00)00224-5

215. Berger C. i in., J. Phys. Chem. B, 108, 2004, 19912. https://doi.org/10.1021/jp040650f

216. Tanaka S. i in., Phys. Rev. B, 80, 2009, 121406R. https://doi.org/10.1103/PhysRevB.80.035113

217. Tromp R.M., Hannon J.B., Phys. Rev. Lett., 102, 2009, 106104. https://doi.org/10.1103/PhysRevLett.102.106104

218. Vironajadara C. i in., Phys. Rev. B, 78, 2008, 245403.

219. Emtsev K.V. i in., Nature Materials, 8, 2009, 203. https://doi.org/10.1038/nmat2382

220. Dimitrakopoulos C i in., J. Vac. Sci. Technol. B, 28, 2010, 985.

221. Berger C. i in., Science, 312, 2006, 1191. https://doi.org/10.1126/science.1125925

222. Hibino H. i in., Phys. Rev. B, 77, 2008, 075413.

223. 221. Ohta T. i in., New J. Phys., 10, 2008, 023034. https://doi.org/10.1088/1367-2630/10/2/023034

224. Emstev K.V. i in., Phys. Rev. B, 77, 2008, 155303.

225. Hannon J.B. i in., Phys. Rev. Lett., 107, 2011, 166101. https://doi.org/10.1103/PhysRevLett.107.166101

226. Matsunami H. i in., J. Cryst. Growth, 45, 1978, 138. https://doi.org/10.1016/0022-0248(78)90425-6

227. Boo J.-H. i in., Appl. Phys. Lett., 66, 1995, 19. https://doi.org/10.1063/1.113772

228. Nishino S. i in., J. Electrochem. Soc., 127, 1980, 2674. https://doi.org/10.1149/1.2129570

229. Ikoma K. i in., J. Electrochem. Soc., 138, 1991, 3028. https://doi.org/10.1149/1.2085360

230. Coletti C. i in., Appl. Phys. Lett., 99, 2011, 081904. https://doi.org/10.1063/1.3618674

231. Jernigan G.G. i in., Nano Lett., 9, 2009, 2605. https://doi.org/10.1021/nl900803z

232. Riedl C. i in., Phys. Rev. B, 76, 2007, 245406.

233. Ramachandran V. i in., J. Electron. Mater., 27, 1998, 308.

234. Hass J. i in., Phys. Rev. Lett., 100, 2008, 125505.

235. van Mil B.L. i in., Mater. Sci. Forum, 617, 2009, 615.

236. Lin Y. i in., Science, 327, 2010, 662. https://doi.org/10.1126/science.1184289

237. Presser V. i in., Adv. Funct. Mater., 21, 2011, 810. https://doi.org/10.1002/adfm.201002094

238. Sutter P., Nat. Mater., 8, 2009, 171. https://doi.org/10.1038/nmat2392

239. Hupalo M. i in., Phys. Rev. B, 80, 2001, 041401R.

240. Gaskell P.E. i in., Opt. Lett., 35, 2010, 3336. https://doi.org/10.1364/OL.35.003336

241. Strupiński W. i in., Mater. Sci. Forum, 645-648, 2010, 569. https://doi.org/10.4028/www.scientific.net/MSF.645-648.569

242. Shelton J.C. i in., Surf. Sci., 43, 1974, 493. https://doi.org/10.1016/0039-6028(74)90272-6

243. Eizenberg M., Blakely J.M., Surf. Sci., 82, 1979, 228. https://doi.org/10.1016/0039-6028(79)90330-3

244. Oshima C., Nagashima A., J. Phys.: Cond. Matter, 9, 1979, 1.

245. Kern W., Schnable G.L., IEEE Trans. Electron. Devices, 26, 1979, 647. https://doi.org/10.1109/T-ED.1979.19473

246. Xu Y., Yan X.-T., Chemical Vapour Deposition: An Integrated Engineering Design for Advanced Materials, Springer, Berlin 2009.

247. Meyappan M. i in., Plasma Sources Sci. Technol., 12, 2003, 205. https://doi.org/10.1088/0963-0252/12/2/312

248. Kehrer V.J., Leidheiser H., J. Phys. Chem., 58, 1954, 550. https://doi.org/10.1021/j150517a010

249. Karu A.E., Beer M., J. Appl. Phys., 37, 1966, 2179. https://doi.org/10.1063/1.1708759

250. Kholin N.A., Surf. Sci., 139, 1984, 155. https://doi.org/10.1016/0039-6028(84)90014-1

251. Gall N.R. i in., Carbon, 38, 2000, 663. https://doi.org/10.1016/S0008-6223(99)00135-9

252. Moller K., Holmlid L., Appl. Surf. Sci., 29, 1987, 474. https://doi.org/10.1016/0169-4332(87)90052-3

253. Makarenko I.V. i in., Fiz. Tverd. Tela, 49, 2007, 371.

254. Tontegode A.Y., Prog. Surf. Sci., 38, 1991, 201. https://doi.org/10.1016/0079-6816(91)90002-L

255. Yu Q.K. i in., Appl. Phys. Lett., 11, 2008, 113103.

256. Chae S. i in., Adv. Mater., 21, 2009, 2328.

257. Reina A i in., Nano Lett., 9, 2009, 30. https://doi.org/10.1021/nl801827v

258. Kim K. i in., Nature, 457, 2009, 706. https://doi.org/10.1038/nature07719

259. De Arco G. i in., IEEE Trans. Nanotechnol., 9, 2009, 135. https://doi.org/10.1109/TNANO.2009.2013620

260. Pollard A.J. i in., J. Phys. Chem C, 113, 2009, 16565. https://doi.org/10.1021/jp906066z

261. Reina A. i in., Nano Res., 2, 2009, 509. https://doi.org/10.1007/s12274-009-9059-y

262. Mun J.H. i in., Carbon, 48, 2010, 447. https://doi.org/10.1016/j.carbon.2009.09.058

263. Wei D.C. i in., Nano Lett., 9, 2009, 1752. https://doi.org/10.1021/nl803279t

264. Li X. i in., Nano Lett., 9, 2009, 4359. https://doi.org/10.1021/nl902623y

265. Levendorf M.P. i in., Nano Lett., 9, 2009, 4479. https://doi.org/10.1021/nl902790r

266. Coraux J. i in., Nano Lett., 8, 2008, 565. https://doi.org/10.1021/nl0728874

267. Charrier C., Diamond Relat. Mater., 3, 1994, 41. https://doi.org/10.1016/0925-9635(94)90028-0

268. Angemann H.-H., Hoerz G., Appl. Surf. Sci., 70/71, 1993, 163.

269. Land T.A. i in., Surf. Sci., 264, 1992, 261. https://doi.org/10.1016/0039-6028(92)90183-7

270. Li X. i in., Science, 324, 2009, 1312. https://doi.org/10.1126/science.1171245

271. Lopez G.A., Mittemejjer E., Scr. Mat., 51, 2004, 1.

272. Chen S. i in., Nano Lett., 11, 2011, 3519. https://doi.org/10.1021/nl201699j

273. Cai W.W. i in., Nano Res., 2, 2009, 851. https://doi.org/10.1007/s12274-009-9083-y

274. Bae S. i in., Nature Nanotech., 4, 2010, 574.

275. Li X. i in., Science, 324, 2009, 4359.

276. Li Z. i in., ACS Nano, 5, 2011, 3385. https://doi.org/10.1021/nn200854p

277. Sun J. i in., Appl. Phys. Lett., 98, 2011, 252107. https://doi.org/10.1063/1.3602921

278. Scott A. i in., Appl. Phys. Lett., 98, 2011, 073110. https://doi.org/10.1063/1.3556639

279. Ruemmeli M.H. i in., ACS Nano, 4, 2010, 4206. https://doi.org/10.1021/nn100971s

280. Strupiński W. i in., Nano Lett., 11, 2011, 1786. https://doi.org/10.1021/nl200390e

281. Fanton M.A. i in., ACS Nano, 5, 2011, 8062. https://doi.org/10.1021/nn202643t

282. Herron C.R i in., J. Mater. Chem., 21, 2011, 3378. https://doi.org/10.1039/c0jm03437a

283. Sutter P.W. i in., Nature Materials., 7, 2008, 406. https://doi.org/10.1038/nmat2166

284. Obraztsov A.N. i in., Carbon, 45, 2007, 2017. https://doi.org/10.1016/j.carbon.2007.05.028

285. Obraztsov A.N. i in., Carbon, 41, 2003, 836. https://doi.org/10.1016/S0008-6223(02)00402-5

286. Kollie T.G., Phys. Rev. B, 16, 1977, 4872. https://doi.org/10.1103/PhysRevB.16.4872

287. Pierson H.O., Handbook of carbon, diamond and fullerenes, Noyes, Park Ridge, USA 1993. https://doi.org/10.1016/B978-0-8155-1339-1.50018-9

288. Li X. i in., Nano Lett., 9, 2009, 4268. https://doi.org/10.1021/nl902515k

289. Nyapshaev I.A. i in., Fizika Tverdogo Tela, 51, 2009, 997.

290. Zolotukhin A.A. i in., Zh. Eksp. Teor. Fiz., 124, 2003, 1291.

291. Wang X. i in., Chem. Vap. Deposition, 15, 2009, 53.

292. Chen Z. i in., Carbon, 48, 2010, 3543. https://doi.org/10.1016/j.carbon.2010.05.052

293. Lee Y. i in., Nano Lett., 10, 2010, 490. https://doi.org/10.1021/nl903272n

294. Garnett W. i in., Appl. Phys. Lett., 98, 2011, 242105. https://doi.org/10.1063/1.3599708

295. Li X.. i in., J. Am. Chem. Soc., 133, 2011, 2816. https://doi.org/10.1021/ja109793s

296. Watanabe K. i in., Nature Materials, 3, 2004, 404. https://doi.org/10.1038/nmat1134

297. Li X.S. i in., Nano Lett., 10, 2010, 4328. https://doi.org/10.1021/nl101629g

298. Kalbac M. i in., Carbon, 50, 2012, 3682. https://doi.org/10.1016/j.carbon.2012.03.041

299. Jiang L. i in., J. Am. Chem. Soc., 135, 2013, 9050. https://doi.org/10.1021/ja4031825

300. Wu B. i in., NPG Asia Mater., 5, 2013, e36. https://doi.org/10.1038/am.2012.68

301. Chhowalla M. i in., J. Appl. Phys., 90, 2001, 5308. https://doi.org/10.1063/1.1410322

302. Teo K.B.K. i in., Nanotechnology, 14, 2001, 204. https://doi.org/10.1088/0957-4484/14/2/321

303. Hofmann S. i in., Phys. Rev. Lett., 95, 2005, 036101. https://doi.org/10.1103/PhysRevLett.95.036101

304. Boskovic B.O. i in., Nature Materials, 1, 2002, 165. https://doi.org/10.1038/nmat755

305. Casiraghi C. i in., Materials Today, 10, 2007, 44. https://doi.org/10.1016/S1369-7021(06)71791-6

306. Casiraghi C. i in., Phys. Rev. Lett., 91, 2003, 226104. https://doi.org/10.1103/PhysRevLett.91.226104

307. Moseler M. i in., Science, 309, 2005, 1545. https://doi.org/10.1126/science.1114577

308. Kim J. i in., Appl. Phys. Lett., 98, 2011, 091502. https://doi.org/10.1063/1.3561747

309. Terasawa T.-O. i in., Carbon, 50, 2012, 869. https://doi.org/10.1016/j.carbon.2011.09.047

310. Malesevic A. i in., Nanotechnology, 19, 2008, 305604. https://doi.org/10.1088/0957-4484/19/30/305604

311. French B.L. i in., J. Appl. Phys., 97, 2005, 114317. https://doi.org/10.1063/1.1927284

312. French B.L. i in., Thin Solid Films, 494, 2006, 105. https://doi.org/10.1016/j.tsf.2005.07.155

313. Chuang A.T. i in., Appl. Phys. Lett., 90, 2007, 123107. https://doi.org/10.1063/1.2715441

314. Chuang A.T. i in., Diamond Relat. Mater., 15, 2006, 1103. https://doi.org/10.1016/j.diamond.2005.11.004

315. Mori S. i in., Diamond. Relat. Mat., 20, 2011, 1129. https://doi.org/10.1016/j.diamond.2011.06.021

316. Kwon O.-Y. i in., J. Ind. Eng. Chem., 9, 2003, 743.

317. Inagaki M. i in., Tanso, 215, 2004, 249. https://doi.org/10.7209/tanso.2004.249

318. Kataria S. i in., Phys. Stat. Solidi A, 211, 2014, 2439. https://doi.org/10.1002/pssa.201400049

319. Wang G. i in., Sci. Rep., 3, 2013, 2465. https://doi.org/10.1038/srep01298

320. Lee J.-H. i in., Science, 344, 2014, 286.

321. Lippert G. i in., Carbon, 75, 2014, 14. https://doi.org/10.1016/j.carbon.2014.03.042

322. Kowalski G. i in., J. Appl. Phys., 117, 2015, 105301. https://doi.org/10.1063/1.4914161

323. 321. Strupiński W. i in., Carbon, 81, 2015, 63. https://doi.org/10.1016/j.carbon.2014.08.099

324. Urban J. i in., J. Appl. Phys., 115, 2014, 233504. https://doi.org/10.1063/1.4884015

325. Borysiuk J. i in., J. Appl. Phys., 115, 2014, 054310. https://doi.org/10.1063/1.4863644

326. Tokarczyk M. i in., Appl. Phys. Lett., 103, 2013, 241915. https://doi.org/10.1063/1.4848815

327. Drabińska A. i in., Phys. Rev. B, 88, 2013, 165413.

328. Własny I. i in., Appl. Phys.Lett., 102, 2013, 111601. https://doi.org/10.1063/1.4795861

329. Drabińska A. i in., 31st International Conference on the Physics of Semiconductors (ICPS), Zurich, Szwajcaria JUL 29-AUG 03, 2012; Physics of Semiconductors Book Series: AIP Conference Proceedings, 1566, 2013, 159.

330. Drabińska A. i in., Phys. Rev. B, 86, 2012, 045421. https://doi.org/10.1103/PhysRevB.86.045421

331. Grodecki K. i in., Appl. Phys. Lett., 100, 2012, 261604. https://doi.org/10.1063/1.4730372

332. Grodecki K. i in., J. Appl. Phys., 111, 2012, 114307. https://doi.org/10.1063/1.4721673

333. Borysiuk J. i in., Phys. Rev. B, 85, 2012, 045426.

334. Tarka J. i in., Optical Materials Express, 4, 2014, 1981. https://doi.org/10.1364/OME.4.001981

335. Soboń G. i in., Optics Express, 20, 2012, 19463. https://doi.org/10.1364/OE.20.019463

336. Hinzman M. i in., Int. J. Nanomedicine, 9, 2014, 2409.

337. Lipińska L. i in., Przem. Chem., 93, 2014, 677.

338. Lipińska L. i in., I Krajowa Konferencja "Grafen i inne materiały 2D", Szczecin, 27-29.09.2015.

339. Zhydachevskii Y. i in., Mat. Chem. Physics, 143, 2014, 622. https://doi.org/10.1016/j.matchemphys.2013.09.044

340. Jusza A. i in., Optical Materials, 36, 2014, 1749. https://doi.org/10.1016/j.optmat.2014.03.018

341. Krasnikov A. i in., Optical Materials, 36, 2014, 1705. https://doi.org/10.1016/j.optmat.2014.01.030

342. Krajewski M. i in., J. Power Sources, 245, 2014, 764. https://doi.org/10.1016/j.jpowsour.2013.07.048

343. Michalska M. i in., Electrochim. Acta, 136, 2014, 286. https://doi.org/10.1016/j.electacta.2014.05.108

344. Michalska M. i in., Powder Technology, 266, 2014, 372. https://doi.org/10.1016/j.powtec.2014.06.056

345. www.nanomaterials.pl.

346. Wróblewski G. i in., Acta Physica Polonica A, 125, 2014, 861. https://doi.org/10.12693/APhysPolA.125.861

347. Słoma M. i in., J. Nanomaterials, 2014, 143094. https://doi.org/10.1155/2014/143094

348. Janczak D. i in., Sensors, 14, 2014, 17304. https://doi.org/10.3390/s140917304

349. Olszewska-Placha M. i in., IEEE Xplore, 63, 2015, 565. https://doi.org/10.1109/TAP.2014.2379932

350. Jakubowska M. i in., Elektronika, 53, 2012, 97.

351. Słoma M. i in., Elektronika, 55, 2015, 35.

352. Jagiello J. i in., Mat. Chem. Phys., 148, 2014, 507. https://doi.org/10.1016/j.matchemphys.2014.09.043

353. Verdaguer A. i in., Appl. Phys. Lett., 94, 2009, 233105. https://doi.org/10.1063/1.3149770

354. Klusek Z. i in., Appl. Phys. Lett., 95, 2009, 113114. https://doi.org/10.1063/1.3231440

355. Sławińska J. i in., Phys. Rev. B, 81, 2010, 155433. https://doi.org/10.1103/PhysRevB.81.155433

356. Sławińska J. i in., Phys. Rev. B, 82, 2010, 085431. https://doi.org/10.1103/PhysRevB.82.085431

357. Sławińska J.i in., Phys. Rev. B, 83, 2011, 245429.

358. Sławińska J., Zasada I., Phys. Rev. B, 84, 2011, 235445. https://doi.org/10.1103/PhysRevB.84.235445

359. Szałowski K., Phys. Rev. B, 84, 2011, 205409. https://doi.org/10.1103/PhysRevB.84.205409

360. Kosiński P. i in., Progr. Theor. Phys., 128, 2012, 727. https://doi.org/10.1143/PTP.128.59

361. Sławińska J. i in., Phys. Rev. B, 85, 2012, 235430. https://doi.org/10.1103/PhysRevB.85.235430

362. Baranowski J.M. i in., Graphene, 2, 2013, 115. https://doi.org/10.1089/g4h.2013.1502

363. Szałowski K., J. Phys.: Condensed Matter, 25, 2013, 166001. https://doi.org/10.1088/0953-8984/25/16/166001

364. Szałowski K., Physica E, 52, 2013, 46. https://doi.org/10.1016/j.physe.2013.03.017

365. Szałowski K., J. Appl. Phys., 114, 2013, 243908. https://doi.org/10.1063/1.4858378

366. Sławińska J., Cerda J.I., Carbon, 74, 2014, 146. https://doi.org/10.1016/j.carbon.2014.03.016

367. Szałowski K., Phys. Rev. B, 90, 2014, 085410. https://doi.org/10.1103/PhysRevB.90.085410

368. Urban J.M. i in., J. Appl. Phys., 115, 2014, 233504.

369. Własny I. i in., Corrosion Science, 2014, doi.org/10.1016/j.corsci.2014.11.027.

370. www.advancedgrapheneproducts.com.

371. Patent WO2014035264 - A1.

372. Patent WO2014035264 - A8.

373. Patent PL400511 - A1.

374. Kula P. i in., Int. J. Hydrogen Energy, 39, 2014, 19662. https://doi.org/10.1016/j.ijhydene.2014.09.157

375. Kula P. i in., Technical Proceedings of the 2013 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2013, s. 210.

376. Kula P.i in., Appl. Mech. Mat., 2014, 8.

377. Lipson H., Stokes A.R., Proc. Roy. Soc. London A, 181, 1942, 101.

378. Biscoe J., Warren B.E., J. Appl. Phys., 13, 1942, 364. https://doi.org/10.1063/1.1714879

379. Karu A.E., Beer M., J. Appl. Phys., 37, 1966, 2179. https://doi.org/10.1063/1.1708759

380. Winder S.M. i in., Carbon, 44, 2006, 3037. https://doi.org/10.1016/j.carbon.2006.05.012

381. Walker P.L., Imperial G., Nature, 180, 1957, 1184. https://doi.org/10.1038/1801184a0

382. Derbyshire F.J. i in., Carbon, 13, 1975, 111. https://doi.org/10.1016/0008-6223(75)90267-5

383. Yoshii S. i in., Nano Lett., 11, 2011, 2628. https://doi.org/10.1021/nl200604g

384. Grabke H.J. i in., Surf. Sci., 63, 1977, 377. https://doi.org/10.1016/0039-6028(77)90353-3

385. Hamilton J.C., Blakely J.M., Surf. Sci., 91, 1980, 119. https://doi.org/10.1016/0167-2584(80)90236-4

386. N'Diaye A.T. i in., Phys. Rev. Lett., 97, 2006, 215501.

387. Peng Z.W. i in., ACS Nano, 5, 2011, 8241. https://doi.org/10.1021/nn202923y

388. Cho A.Y., Arthur J.R., Prog. Solid State Chem., 10, 1973, 157. https://doi.org/10.1016/0079-6786(75)90005-9

389. Al-Temimy A. i in., Appl. Phys. Lett., 95, 2009, 231907. https://doi.org/10.1063/1.3265916

390. Liu Z. i in., Solid State Commun., 152, 2012, 960. https://doi.org/10.1016/j.ssc.2012.08.027

391. Lippert G. i in., Phys. Stat. Solidi B, 248, 2011, 2619. https://doi.org/10.1002/pssb.201100052

392. Seifarth O. i in., DOI: 10.1109/SCD.2011.6068742. https://doi.org/10.1109/SCD.2011.6068742

393. Garcia J.M. i in., Solid State Commun., 150, 2010, 809. https://doi.org/10.1016/j.ssc.2010.02.029

394. Hackley J. i in., Appl. Phys. Lett., 95, 2009, 133114. https://doi.org/10.1063/1.3242029

395. Garcia J.M. i in., Solid State Commun., 152, 2012, 975. https://doi.org/10.1016/j.ssc.2012.04.005

396. Jerng S.K. i in., J. Phys. Chem. C, 116, 2012, 7380. https://doi.org/10.1021/jp210910u

397. Jeng S.K. i in., J. Phys. Chem. C, 115, 2011, 4491.

398. Tsang W.T. i in., Appl. Phys. Lett., 45, 1984, 1234. https://doi.org/10.1063/1.95075

399. Lee K.Y. i in., Appl. Phys. Lett., 89, 2006, 222906. https://doi.org/10.1063/1.2397542

400. Suntola T., Mater. Sci. Rep., 4, 1989, 261. https://doi.org/10.1016/S0920-2307(89)80006-4

401. Ritala M. i in., Chem. Mater., 11, 1999, 1712. https://doi.org/10.1021/cm980760x

402. Kim H. i in., J. Mater. Res., 19, 2004, 643. https://doi.org/10.1557/jmr.2004.0081

403. Aisemberg S., Chabot R., J. Appl. Phys., 42, 1971, 2953. https://doi.org/10.1063/1.1660654

404. Ferrari A.C., Roberstson J., Phys. Rev. B, 61, 2000, 14095. https://doi.org/10.1103/PhysRevB.61.14095

405. Ferrari A.C. i in., Phys. Rev. B, 62, 2000, 1189. https://doi.org/10.1103/PhysRevD.62.107504

406. Ferrari A.C. i in., J. Appl. Phys., 85, 1999, 7191.

407. Ilie A. i in., Appl. Phys. Lett., 76, 2000, 2627. https://doi.org/10.1063/1.126430

408. Barreiro A. i in., arXiv:1201.3131v1.

409. Chhowalla M. i in., Appl. Phys. Lett., 76, 2000, 1419. https://doi.org/10.1063/1.126050

410. Kleinsorge B. i in., J. Appl. Phys., 88, 2000, 1149. https://doi.org/10.1063/1.373790

411. Turchanin A. i in., ACS Nano, 5, 2011, 3896. https://doi.org/10.1021/nn200297n

412. Dreyer R.D. i in., Angew. Chem., Int. Ed., 49, 2010, 9336. https://doi.org/10.1002/anie.201003024

413. Cai J. i in., Nature, 466, 2010, 470. https://doi.org/10.1038/nature09211

414. Yan X. i in., Nano Lett., 10, 2010, 1869. https://doi.org/10.1021/nl101060h

415. Zhi L., Mullen K.A., J. Mater. Chem., 18, 2008, 1472. https://doi.org/10.1039/b717585j

416. Dossel L. i in., Angew. Chem., Int. Ed., 50, 2011, 2540. https://doi.org/10.1002/anie.201006593

417. Inoue K. i in., Prog. Polym. Sci., 25, 2000, 453. https://doi.org/10.1016/S0079-6700(00)00011-3

418. Sun Z. i in., Nature, 468, 2010, 549. https://doi.org/10.1038/nature09579

419. Park S., Ruoff R.S., Nat. Nanotechnol., 4, 2009, 217. https://doi.org/10.1038/nnano.2009.58

420. Amelincx S. i in., Science, 267, 1995, 1334. https://doi.org/10.1126/science.267.5202.1334

421. Zhou O. i in., Science, 263, 1994, 1744. https://doi.org/10.1126/science.263.5154.1744

422. Viculis L.M. i in., Science, 299, 2003, 1361. https://doi.org/10.1126/science.1078842

423. Cano-Marquez A.G. i in., Nano Lett., 9, 2009, 1527. https://doi.org/10.1021/nl803585s

424. Kang Z. i in., J. Am. Chem. Soc., 125, 2003, 13652. https://doi.org/10.1021/ja037399m

425. Schmidt O.G., Eberl K., Nature, 410, 2001, 168. https://doi.org/10.1038/35065525

426. Terrones M., Nature, 458, 2009, 845. https://doi.org/10.1038/458845a

427. Kosynkin D.V. i in., Nature, 458, 2009, 872. https://doi.org/10.1038/nature07872

428. Sinitskii A., Tour J.M., IEEE Spectr., 47, 2010, 28. https://doi.org/10.1109/MSPEC.2010.5605889

429. Jiao L. i in., Nature, 458, 2009, 877. https://doi.org/10.1038/nature07919

430. Sinitskii A. i in., Appl. Phys. Lett., 95, 2009, 253108. https://doi.org/10.1063/1.3276912

431. Nakada K. i in., Phys. Rev. B, 54, 1996, 17954. https://doi.org/10.1103/PhysRevB.54.17954

432. Han M.Y. i in., Phys. Rev. Lett., 98, 2007, 206805.

433. Chen Z. i in., Physica E, 40, 2007, 228. https://doi.org/10.1016/j.physe.2007.06.020

434. Ponomarenko L.A. i in., Science, 320, 2008, 356. https://doi.org/10.1126/science.1154663

435. Tapaszto L. i in., Nature Nanotech., 3, 2008, 397. https://doi.org/10.1038/nnano.2008.149

436. Singh A.K. i in., Nano Lett., 9, 2009, 1540. https://doi.org/10.1021/nl803622c

437. Ci L. i in., Nano Res., 1, 2008, 116. https://doi.org/10.1007/s12274-008-8020-9

438. Campos L.C. i in., Nano Lett., 9, 2009, 2600. https://doi.org/10.1021/nl900811r

439. Lee W.K. i in., Nano Lett., 11, 2011, 5461. https://doi.org/10.1021/nl203225w

440. Wei Z. i in., Science, 328, 2010, 1373. https://doi.org/10.1126/science.1188119

441. Spinkle M. i in., Nature Nanotech., 5, 2010, 727.

442. Datta S.S. i in., Nano Lett., 8, 2008, 1912. https://doi.org/10.1021/nl080583r

443. Fasoli A. i in., Phys. Stat. Solidi B, 246, 2009, 2514. https://doi.org/10.1002/pssb.200982356

444. Pan Z. i in., J. Am. Chem. Soc., 133, 2011, 17578. https://doi.org/10.1021/ja207517u

445. Campos-Delgado J. i in., Nano Lett., 8, 2008, 2773. https://doi.org/10.1021/nl801316d

446. Greinke R. A. i in., US Patent 6,416,815, 1990.

447. Forsman W.C., i in., Carbon, 16, 1978, 269. https://doi.org/10.1016/0008-6223(78)90040-4

448. Dimiev A.M., Tour J.M., Materials Matter, 10, 2015, 3. https://doi.org/10.1021/acsnano.5b06840

449. Abramova V. i in., ACS Nano, 7, 2013, 6894. https://doi.org/10.1021/nn403057t

450. Vo T.H. i in., Nature Comm., 2014, https://doi.org/10.1038/ncomms4189

451. Genorio B. i in., ACS Nano, 6, 2012, 4231. https://doi.org/10.1021/nn300757t

452. Kosynkin D.V. i in., ACS Nano, 5, 2011, 968. https://doi.org/10.1021/nn102326c

453. Pan D. i in., Adv. Mater., 22, 2010, 734. https://doi.org/10.1002/adma.200902825

454. Zhu S. i in., Chem. Commun., 47, 2011, 6858. https://doi.org/10.1039/c1cc11122a

455. Shen J. i in., Chem. Commun., 47, 2011, 2580. https://doi.org/10.1039/C0CC04812G

456. Li Y. i in., Adv. Mater., 23, 2011, 776.

457. Lu J. i in., Nature Nanotech., 6, 2011, 247. https://doi.org/10.1038/nnano.2011.30

458. Liu R. i in., J. Am. Chem. Soc., 133, 2011, 15221. https://doi.org/10.1021/ja204953k

459. Kim C.-D. i in., Carbon, 47, 2009, 1605. https://doi.org/10.1016/j.carbon.2009.02.009

460. Geiger R., Staack D., J. Phys. D: Appl. Phys., 44, 2010, 274005. https://doi.org/10.1088/0022-3727/44/27/274005

461. Tryba B. i in., Carbon, 43, 2005, 2397. https://doi.org/10.1016/j.carbon.2005.03.047

462. Pristavita R. i in., Plasma Chem. Plasma Proc., 31, 2011, 393. https://doi.org/10.1007/s11090-011-9289-0

463. Gan X. i in., Carbon, 50, 2012, 306. https://doi.org/10.1016/j.carbon.2011.08.057

464. Manning T.J. i in., Carbon, 37, 1999, 1159. https://doi.org/10.1016/S0008-6223(98)00316-9

465. Okotrub A.V. i in., Phys. Stat. Solidi B, 246, 2009, 2545.

466. Yudanov N.F., Chemyvskii L.I., J. Struct. Chem., 28, 1987, 534. https://doi.org/10.1007/BF00749587

467. Liu N. i in., Nano Lett., 11, 2011, 297. https://doi.org/10.1021/nl103962a

468. Jiao L.Y. i in., J. Am. Chem. Soc., 130, 2008, 12612. https://doi.org/10.1021/ja805070b

469. Reina A. i in., J. Phys. Chem. C, 112, 2008, 17741. https://doi.org/10.1021/jp807380s

470. Gao Y. i in., Carbon, 50, 2012, 4093. https://doi.org/10.1016/j.carbon.2012.04.057

471. Liu X. i in., Chem. Eng. J., 183, 2012, 238.

472. Liu Q.F. i in., J. Phys. Chem. C, 111, 2007, 5006. https://doi.org/10.1021/jp068672k

473. Huang H.J. i in., J. Phys. Chem. B, 107, 2003, 8794. https://doi.org/10.1021/jp0349435

474. Wang X.K. i in., J. Mater. Res., 10, 1995, 1977. https://doi.org/10.1557/JMR.1995.1247

475. Wang X.K. i in., Appl. Phys. Lett., 66, 1995, 2430. https://doi.org/10.1063/1.113963

476. Zhao X. i in., Carbon, 35, 1997, 775. https://doi.org/10.1016/S0008-6223(97)00033-X

477. Zhao X. i in., J. Cryst. Growth, 198/199, 1999, 934. https://doi.org/10.1016/S0022-0248(98)00995-6

478. Subrahmanyam K.S. i in., J. Phys. Chem. Lett., 113, 2009, 4257. https://doi.org/10.1021/jp900791y

479. Seshadri R. i in., Curr. Sci. (India), 66, 1994, 839.

480. Wu Z.-S. i in., Carbon, 47, 2009, 493. https://doi.org/10.1016/j.carbon.2008.10.031

481. Li N. i in., Carbon, 48, 2010, 255. https://doi.org/10.1016/j.carbon.2009.09.013

482. Lian Y.F. i in., Chem. Mater., 13, 2001, 39. https://doi.org/10.1021/cm990732u

483. Subrahmanyam K.S. i in., J. Mater. Chem., 18, 2008, 1517. https://doi.org/10.1039/b716536f

484. Andersson O.E. i in., Phys. Rev. B, 58, 1998, 16387. https://doi.org/10.1103/PhysRevB.58.16387

485. Cooper D.R. i in., Int. Scholarly Research Notes, 2012, ID 501686.

486. Anonim, Nanotechweb Review, Winter 2014/2015, 13.

487. Liu X. i in., Small, 10, 2014, 193. https://doi.org/10.1002/smll.201300812

488. Wu J. i in., Chem. Rev., 107, 2007, 718. https://doi.org/10.1021/cr068010r

489. Zhang W., Moore J.S., Adv. Synth. Catal., 349, 2007, 93. https://doi.org/10.1002/adsc.200600476

490. Schultz M.J. i in., Proc. Natl. Acad. Sci. USA, 105, 2008, 7353.

491. Hartley C.S. i in., J. Am. Chem. Soc., 129, 2007, 4512. https://doi.org/10.1021/ja0690013

492. Hartley C.S., Moore J., J. Am. Chem. Soc., 129, 2007, 11682. https://doi.org/10.1021/ja0745963

493. Yang X. i in., J. Am. Chem. Soc., 130, 2008, 4216. https://doi.org/10.1021/ja710234t

494. Kobayashi T. i in., Appl. Phys. Lett., 102, 2013, 023112. https://doi.org/10.1063/1.4776707

495. Hejsedal T., Appl. Phys. Lett., 98, 2011, 133106. https://doi.org/10.1063/1.3573866

496. Yamada T. i in., Carbon, 50, 2012, 2615. https://doi.org/10.1016/j.carbon.2012.02.020

497. www.nanointegris.com.

498. www.haydale.com.

499. www.abalonyx.com.

500. www.grapheat-solutions.com.

501. Han Z. i in., Adv. Funct. Mater., 24, 2014, 964.

502. www.canaccordgenuity.com.

503. www.graphenelabs.com.

504. Anonim, Materials Matters, 8, 2013, 29.

505. www.aldrich.com/graphene.

506. Anonim, Material Matters, 9, 2014, 1.

507. Anonim, Material Matters, 10, 2015, 7.

508. www.grapheneshop.pl.

509. www.nanomaterials.pl.

510. Bunch J.S. i in., Science, 315, 2007, 490. https://doi.org/10.1126/science.1136836

511. Meyer J.C. i in., Appl. Phys Lett., 92, 2008, 123110. https://doi.org/10.1063/1.2901147

512. Booth T. i in., Nano Lett., 8, 2008, 2442. https://doi.org/10.1021/nl801412y

513. Nair R. i in., Science, 320, 2008, 1308. https://doi.org/10.1126/science.1156965

514. Mayorov A.S. i in., Nano Lett., 12, 2012, 4629. https://doi.org/10.1021/nl301922d

515. Bolotin K.I. i in., Nature, 462, 2009, 196. https://doi.org/10.1038/nature08582

516. Guota P. i in., Sci. Rept., 4, 2014, 3883.

517. Wang Y. i in., ACS Nano, 5, 2011, 9927. https://doi.org/10.1021/nn203700w

518. Ciuk T. i in., J. Phys. Chem. C, 117, 2013, 20833. https://doi.org/10.1021/jp4032139

519. Meitl M.A. i in., Nano Lett., 4, 2004, 1643. https://doi.org/10.1021/nl0491935

520. Bonaccorso F. i in., Nature Photon., 4, 2010, 611. https://doi.org/10.1038/nphoton.2010.186

521. Yasin S. i in., Appl. Phys. Lett., 78, 2001, 2760. https://doi.org/10.1063/1.1369615

522. Mayorov A.S. i in., Nano Lett., 11, 2011, 2396. https://doi.org/10.1021/nl200758b

523. Haigh S.J.i in., Nature Materials, 11, 2012, 764. https://doi.org/10.1038/nmat3386

524. Zhou Y. i in., Appl. Phys. Lett., 88, 2006, 123109. https://doi.org/10.1063/1.2187945

525. Ishikawa F.N. i in., ACS Nano, 3, 2009, 77. https://doi.org/10.1021/nn9009032

526. Allen M.J. i in., Adv. Mater., 21, 2009, 2098.

527. Chen J.-H. i in., Adv. Mater., 19, 2007, 3623. https://doi.org/10.1002/adma.200701059

528. Kang S. i in., Nano Lett., 7, 2007, 3343. https://doi.org/10.1021/nl071596s

529. Liang X. i in., Nano Lett., 7, 2007, 3840. https://doi.org/10.1021/nl072566s

530. Li X. i in., Nano Lett., 9, 2009, 4359. https://doi.org/10.1021/nl902623y

531. Kang J. i in., ACS Nano, 6, 2012, 5360. https://doi.org/10.1021/nn301207d

532. Song L. i in., ACS Nano, 3, 2009, 1353. https://doi.org/10.1021/nn9003082

533. Krupke R. i in., Nano Lett., 3, 2003, 1019. https://doi.org/10.1021/nl0342343

534. Krupke R. i in., Science, 301, 2003, 344. https://doi.org/10.1126/science.1086534

535. Burg B.R. i in., Appl. Phys. Lett., 94, 2009, 053110. https://doi.org/10.1063/1.3077197

536. Kang H. i in., Carbon, 47, 2009, 1520. https://doi.org/10.1016/j.carbon.2009.01.049

537. Vijayaraghavan A. i in., ACS Nano, 3, 2009, 1729. https://doi.org/10.1021/nn900288d

538. Hong S. i in., J. Nanosci. Nanotechnol., 8, 2008, 424.

539. Coatings Technology Handbook (red. Tracton A.A.), CRC Press, Boca Raton 2006.

540. Choi M.-C. i in., Prog. Polym. Sci., 33, 2008, 581.

541. Hernandez Y. i in., Nature Nanotech., 3, 2008, 563. https://doi.org/10.1038/454563b

542. Jo Y.M. i in., Chem. Lett., 40, 2011, 54. https://doi.org/10.1246/cl.2011.54

543. Luechinger N.A. i in., Nanotechnology, 19, 2008, 445201. https://doi.org/10.1088/0957-4484/19/44/445201

544. Wang S. i in., Nano Lett., 10, 2010, 92. https://doi.org/10.1021/nl9028736

545. Yu Y. i in., Appl. Phys. Expr., 4, 2011, 115101. https://doi.org/10.1143/APEX.4.115101

546. Bruna M. i in., J. Phys. D: Appl. Phys., 42, 2009, 175307. https://doi.org/10.1088/0022-3727/42/17/175307

547. Ishigami M. i in., Nano Lett., 7, 2007, 1643. https://doi.org/10.1021/nl070613a

548. Stolyarova E.i in., PNAS, 104, 2007, 9209. https://doi.org/10.1073/pnas.0703337104

549. Casiraghi C. i in., Appl. Phys. Lett., 91, 2007, 233108. https://doi.org/10.1063/1.2818692

550. Cheng Z. i in., Nano Lett., 11, 2011, 767. https://doi.org/10.1021/nl103977d

551. Moser J. i in., Appl. Phys. Lett., 91, 2007, 163513. https://doi.org/10.1063/1.2789673

552. Goossens A.M. i in., Appl. Phys. Lett., 100, 2012, 073110. https://doi.org/10.1063/1.3685504

553. Yan J., Fuhrer M.S., Phys. Rev. Lett., 107, 2011, 206601. https://doi.org/10.1103/PhysRevLett.107.206601

554. Pirkle A. i in., Appl. Phys. Lett., 99, 2011, 122108. https://doi.org/10.1063/1.3643444

555. Chan J. i in., ACS Nano, 6, 2012, 3224. https://doi.org/10.1021/nn300107f

556. Liang X. i in., ACS Nano, 5, 2011, 9144. https://doi.org/10.1021/nn203377t

557. Wu Z.C. i in., Science, 305, 2004, 1273. https://doi.org/10.1126/science.1101243

558. Wilson J.A., Yoffe A.D., Adv. Phys., 18, 1969, 193. https://doi.org/10.1080/00018736900101307

559. Kane C.L., Mele E.J., Phys. Rev. Lett., 95, 2005, 226801. https://doi.org/10.1103/PhysRevLett.95.226801

560. Prasad S.V., Zabiński J.S., Nature, 387, 1997, 761. https://doi.org/10.1038/42820

561. Mishra S.K. i in., J. Phys. Condens. Matter., 9, 1997, 461. https://doi.org/10.1088/0953-8984/9/2/014

562. Poizot P. i in., Nature, 407, 2000, 496. https://doi.org/10.1038/35035045

563. Abruna H.D., Bard A.J., J. Electrochem. Soc., 129, 1982, 673. https://doi.org/10.1149/1.2123949

564. Djemail G. i in., Sol. Energy Mat., 5, 1981, 403.

565. Frey G.L. i in., J. Am. Chem. Soc., 125, 2003, 5998. https://doi.org/10.1021/ja020913o

566. Clement R.P., Inorg. Chem., 17, 1978, 2754. https://doi.org/10.1021/ic50188a013

567. Kudo A., J. Am. Chem. Soc., 121, 1999, 11459. https://doi.org/10.1021/ja992541y

568. Pacile D. i in., Appl. Phys. Lett., 92, 2008, 133107. https://doi.org/10.1063/1.2903702

569. Benameur M.M. i in., Nanotechnology, 22, 2011, 125706. https://doi.org/10.1088/0957-4484/22/12/125706

570. Castellanos-Gomez A. i in., Nano Lett., 12, 2012, 3187. https://doi.org/10.1021/nl301164v

571. Coleman J.N. i in., Science, 331, 2011, 568.

572. Han W.Q. i in., Appl. Phys. Lett., 93, 2008, 22. https://doi.org/10.1063/1.3041639

573. Lin Y. i in., J. Phys. Chem. Lett., 1, 2010, 277. https://doi.org/10.1021/jz9002108

574. Warner J.H. i in., ACS Nano, 4, 2010, 1299. https://doi.org/10.1021/nn901648q

575. Zhi C.Y. i in., Adv. Mater., 21, 2009, 2889. https://doi.org/10.1002/adma.200900323

576. Cunningham G. i in., ACS Nano, 6, 2012, 3468. https://doi.org/10.1021/nn300503e

577. Smith R.J. i in., Adv. Mater., 23, 2011, 3944.

578. Lin Y. i in., J. Phys. Chem. C, 115, 2011, 2679. https://doi.org/10.1021/jp110985w

579. Zhou K.G. i in., Angew. Chem., Int. Ed., 50, 2011, 10839.

580. Rai A.K. i in., Surf. Coat. Technol., 92, 1997, 120. https://doi.org/10.1016/S0257-8972(97)00081-9

581. Genut M. i in., Thin Solid Films, 217, 1992, 91. https://doi.org/10.1016/0040-6090(92)90611-E

582. Nagashima A. i in., Phys. Rev. B, 51, 1995, 4606. https://doi.org/10.1103/PhysRevB.51.4606

583. Li Q. i in., Nano Lett., 4, 2004, 277. https://doi.org/10.1021/nl035011f

584. Zheng H. i in., Nano Lett., 10, 2010, 5049. https://doi.org/10.1021/nl103251m

585. Novoselov K.S., Castro Neto A.H., Phys. Scr., T146, 2012, 014006. https://doi.org/10.1088/0031-8949/2012/T146/014006

586. Ponomarenko L.A. i in., Phys. Rev. Lett., 102, 2009, 206603.

587. Georgiou T. i in., arXiv:1211.5090, 2012.

588. Yang H. i in., Science, 336, 2012, 1140. https://doi.org/10.1126/science.1220527

589. Liu Z. i in., Nano Lett., 11, 2011, 2032. https://doi.org/10.1021/nl200464j

590. Shi Y. i in., Nano Lett., 12, 2012, 2784. https://doi.org/10.1021/nl204562j

591. Mucha-Kryczynski M., Phys. Rev. B, 84, 2011, 041404. https://doi.org/10.1103/PhysRevB.84.041404

592. Luican A. i in., Phys. Rev. Lett., 106, 2011, 126802. https://doi.org/10.1103/PhysRevLett.106.126802

593. Li Y. i in., J. Am. Chem. Soc., 133, 2011, 7296. https://doi.org/10.1021/ja201269b

Agnieszka Dąbrowska **Właściwości grafenu .**

1. www.ptf.fuw.edu.pl, Postępy fizyki, 2015.

2. Soldano C. i in., Carbon, 48, 2015, 2127. https://doi.org/10.1016/j.ifacol.2015.06.403

3. Geim K., Novoselov K.S., Nat. Mater., 6, 2007, 183. https://doi.org/10.1038/nmat1849

4. Peng Q. i in., Nanotechnol. Sci. Appl., 7, 2014, 1.

5. Ferrari C. i in., Nanoscale, 7, 2015, 4587. https://doi.org/10.1039/C5NR90053K

6. Lee C. i in., Science, 321, 2008, 385. https://doi.org/10.1126/science.1157996

7. Geim A.K., Science, 324, 2009, 1530. https://doi.org/10.1126/science.1158877

8. www.graphenea.com/pages/graphene-properties.

9. Novoselov K.S. i in., Science, 306, 2004, 666. https://doi.org/10.1126/science.1102896

10. Bolotin K.I. i in., Solid State Commun., 146, 2008, 351. https://doi.org/10.1016/j.ssc.2008.02.024

11. Bolotin K.I. i in., Phys. Rev. Lett., 101, 2008, 096802. https://doi.org/10.1103/PhysRevLett.101.096802

12. Soldano C. i in., Carbon, 48, 2010, 2127. https://doi.org/10.1016/j.carbon.2010.01.058

13. Hu S. i in., Nature, 516, 2014, 227. https://doi.org/10.1038/nature14015

14. Morozov S.V. i in., Phys. Rev. Lett., 100, 2008, 016602.

15. Mayorov A.S. i in., Nano Lett., 11, 2011, 2396. https://doi.org/10.1021/nl200758b

16. Ma Q. i in., Modern Phys. Lett. B, 27, 2013, 1350008. https://doi.org/10.1142/S0217984913500085

17. Giovannetti G. i in., Phys. Rev. B, 76, 2007, 073103. https://doi.org/10.1103/PhysRevB.76.079902

18. Gomes K. i in., Nature, 483, 2012, 306. https://doi.org/10.1038/nature10941

19. Guinea F. i in., Nat. Phys., 6, 2009, 30.

20. Recher P. i in., Phys. Rev. B, 76, 2007, 235404. https://doi.org/10.1103/PhysRevB.76.235404

21. Balandin A. i in., Nano Lett., 8, 2008, 902. https://doi.org/10.1021/nl0731872

22. Bunch J.S. i in., Nano Lett., 8, 2008, 2458. https://doi.org/10.1021/nl801457b

23. Zhu Y. i in., Adv. Mater., 22, 2010, 3906. https://doi.org/10.1002/adma.201001068

24. Gamble F. i in., J. Chem. Phys., 63, 1975, 2544. https://doi.org/10.1063/1.431645

25. Brownson D. i in., Chem. Soc. Rev., 41, 2012, 6944. https://doi.org/10.1039/c2cs35105f

26. Nair R. i in., Science, 320, 2008, 1308. https://doi.org/10.1126/science.1156965

27. Loh K.P. i in., J. Mater. Chem., 20, 2010, 2277. https://doi.org/10.1039/b920539j

28. Novoselov K., Rev. Mod. Phys., 83, 2011, 837. https://doi.org/10.1103/RevModPhys.83.837

29. Yang M. i in., Appl. Phys., 87, 2005, 253116. https://doi.org/10.1063/1.2149991

30. Novoselov K. i in., Nature, 490, 2012, 11. https://doi.org/10.1038/nmat3345

31. Wu Y. i in., J. Appl. Phys., 108, 2010, 071301. https://doi.org/10.1063/1.3460809

32. Zhang S. i in., Proc. Natl. Acad. Sci. USA, 2015, https://doi.org/10.1073/pnas.1416591112

33. Cooperetal D., Experimental Review of Graphene, 2012.

34. Rao C. i in., Graphene-Syntesis, Properties and Phenomena, Wiley-VCH, 2013. https://doi.org/10.1002/9783527651122

35. Meyer J. i in., Nature, 446, 2007, 60. https://doi.org/10.1038/nature05545

36. Meyer J. i in., Nano Lett., 8, 2008, 3582. https://doi.org/10.1021/nl801386m

37. Girit C. i in., Science, 323, 2009, 1705. https://doi.org/10.1126/science.1166999

38. Gass M. i in., Nat. Nanotechnol., 3, 2008, 676. https://doi.org/10.1038/nnano.2008.280

39. Morgenstern M., Phys. Stat. Solidi B, 248, 2011, 2423. https://doi.org/10.1002/pssb.201147312

40. Gao Y. i in., Int. J. Modern Phys. B, 28, 2014, 1450225. https://doi.org/10.1142/S0217979214502257

41. Stolyarova E. i in., Proc. Natl. Acad. Sci. U.S.A., 104, 2007, 9209.

42. Berger C. i in., J. Phys. Chem. B, 108, 2004, 19912. https://doi.org/10.1021/jp040650f

43. Hiebel F. i in., Phys. Rev. B, 78, 2008, 153412. https://doi.org/10.1103/PhysRevB.78.153412

44. Brar V. i in., Appl. Phys. Lett., 91, 2007, 122102. https://doi.org/10.1063/1.2771084

45. Vázquez de Parga A.L. i in., Phys. Rev. Lett., 100, 2008, 056807. https://doi.org/10.1103/PhysRevLett.100.056807

46. Klusek Z. i in., Appl. Phys. Lett., 95, 2009, 113114. https://doi.org/10.1063/1.3231440

47. Zhang Y.B. i in., Nat. Phys., 5, 2009, 722. https://doi.org/10.1016/j.paid.2009.06.010

48. Deshpande A. i in., Phys. Rev. B, 79, 2009, 205411. https://doi.org/10.1103/PhysRevB.79.205411

49. Zhang Y.B. i in., Nat. Phys., 4, 2008, 627. https://doi.org/10.1038/s41560-019-0452-9

50. Teague M. i in., Nano Lett., 9, 2009, 2542. https://doi.org/10.1021/nl9005657

51. Miller D. i in., Science, 324, 2009, 924. https://doi.org/10.1126/science.1171810

52. Rutter G. i in., Science, 317, 2007, 219. https://doi.org/10.1126/science.1142882

53. Tanaka K. i in., J. Appl. Phys., 44, 2005, 2074. https://doi.org/10.1143/JJAP.44.2074

54. Ramachandran V. i in., J. Electron. Mater., 27, 1998, 308.

55. Lin M. i in., Appl. Phys. Lett., 62, 1993, 702. https://doi.org/10.1063/1.108845

56. Zhang K. i in., Nat. Commun., 3, 2012, 1194.

57. Stobinski L. i in., J. Electron Spectr. Relat. Phenomena, 195, 2014, 145. https://doi.org/10.1016/j.elspec.2014.07.003

58. Ferrari A.C. i in., Nat. Nanotechnol., 8, 2013, 235.

59. Tuinstra F. i in., J. Chem. Phys., 53, 1970, 1126. https://doi.org/10.1063/1.1674108

60. Yan J. i in., Phys. Rev. Lett., 98, 2007, 166802. https://doi.org/10.1103/PhysRevLett.98.216602

61. Basko D. i in., Phys. Rev. B, 80, 2009, 165413. https://doi.org/10.1103/PhysRevB.80.165413

62. Faugeras C. i in., Phys. Rev. Lett., 107, 2011, 36807.

63. Cançado L. i in., Nano Lett., 11, 2011, 3190. https://doi.org/10.1021/nl201432g

64. Ferrari A. i in., Phys. Rev. B, 64, 2001, 075414. https://doi.org/10.1103/PhysRevB.64.075414

65. Malard L. i in., Phys. Rep., 473, 2009, 51. https://doi.org/10.1016/j.physrep.2009.02.003

66. Ferrari A. i in., Phys. Rev. Lett., 97, 2006, 187401. https://doi.org/10.1103/PhysRevLett.97.060402

67. Ni Z.H. i in., ACS Nano, 2, 2008, 2301. https://doi.org/10.1021/nn800459e

68. Mohiuddin T. i in., Phys. Rev. B, 79, 2009, 205433.

69. Huang M.Y. i in., Proc. Natl. Acad. Sci. U.S.A., 106, 2009, 7304.

70. Pisana S., Nature Mater., 6, 2007, 198. https://doi.org/10.1038/nmat1846

71. Das A. i in., Nat. Nanotechnol., 3, 2008, 210.

72. Tsang J. i in., Nat. Nanotechnol., 2, 2007, 725.

73. Das A. i in., Phys. Rev. Lett., 99, 2007, 136803. https://doi.org/10.1103/PhysRevLett.99.038101

74. Ando T., J. Phys. Soc. Jpn., 75, 2006, 054701. https://doi.org/10.1143/JPSJ.75.054701

75. Kohn W., Phys. Rev. Lett., 2, 1959, 393. https://doi.org/10.1103/PhysRevLett.2.393

76. Yan J. i in., Phys. Rev. Lett., 101, 2008, 136804. https://doi.org/10.1103/PhysRevLett.101.126801

77. Das A. i in., Phys. Rev. B, 79, 2009, 155417. https://doi.org/10.1103/PhysRevD.79.043007

78. Malard L. i in., Phys. Rev. Lett., 101, 2008, 257401. https://doi.org/10.1103/PhysRevLett.101.257401

79. Gupta A. i in., ACS Nano, 3, 2009, 45. https://doi.org/10.1021/nn8003636

80. Casiraghi C. i in., Nano Lett., 9, 2009, 1433. https://doi.org/10.1021/nl8032697

81. Gruneis A. i in., Phys. Rev. B, 79, 2009, 205106. https://doi.org/10.1103/PhysRevB.79.205106

82. Balandin A. i in., Nano Lett., 8, 2008, 902. https://doi.org/10.1021/nl0731872

83. Ghosh S. i in., Appl. Phys. Lett., 92, 2008, 151911. https://doi.org/10.1063/1.2907977

84. Li Z.Q. i in., Nature Phys., 4, 2008, 532. https://doi.org/10.1038/nphys989

85. Lerf A. i in., Solid State Ionics, 101, 1997, 857. https://doi.org/10.1016/S0167-2738(97)00319-6

86. Fischer F., Comput. Phys. Commun., 43, 1987, 355. https://doi.org/10.1016/0010-4655(87)90053-1

87. Cramer C.J. i in., Essentials of Computational Chemistry, John Wiley & Sons, 2004.

88. Møller C. i in., Phys. Rev., 46, 1934, 618. https://doi.org/10.1103/PhysRev.46.618

89. Kümmel H., Proceedings of the 11th International Conference, Recent Progress in Many-Body Theories, World Scientific Publishing, Singapore 2002, s. 334.

90. Parr R., Annu. Rev. Phys. Chem., 34, 1983, 631. https://doi.org/10.1146/annurev.pc.34.100183.003215

91. Despoja V. i in., Phys. Rev. B, 86, 2012, 195429. https://doi.org/10.1103/PhysRevB.86.195429

92. Li J. i in., Phys. Rev. B, 66, 2002, 035102. https://doi.org/10.1103/PhysRevB.66.241103

93. Foulkes W. i in., Rev. Mod. Phys., 73, 2001, 33. https://doi.org/10.1103/RevModPhys.73.33

94. Pouillon Y. i in., Phys. Newsl., 90, 2008, 57. https://doi.org/10.1295/kobunshi.57.90

95. http://www.castep.org/CASTEP/.

96. Hafner J. i in., J. Comput. Chem., 29, 2008, 2044. https://doi.org/10.1002/jcc.21057

97. Young D., Computational Chemistry, 001. Appendix A, Wiley-Interscience, 2001, s. 332.

98. Skylaris C. i in., J. Chem. Phys., 122, 2005, 084119. https://doi.org/10.1063/1.1839852

99. Bowler D.R. i in., Phys. Stat. Solidi B, 243, 2006, 989. https://doi.org/10.1002/pssb.200541386

100. Giannozzi P. i in., J. Phys.: Condens. Matter, 21, 2009, 395502.

101. Andrade X. i in., J. Phys.: Condens. Matter, 24, 2012, 233202. https://doi.org/10.1088/0953-8984/24/23/233202

102. Umrigar C.J. i in., J. Chem. Phys., 99, 1993, 2865. https://doi.org/10.1063/1.465195

103. Umrigar C.J. i in., Phys. Rev. Lett., 60, 1988, 1719. https://doi.org/10.1103/PhysRevLett.60.1719

104. Car R. i in., Phys. Rev. Lett., 55, 1985, 2471. https://doi.org/10.1103/PhysRevLett.55.2471

105. Towler M.D. i in., Comput. Phys. Commun., 98, 1996, 181. https://doi.org/10.1016/0010-4655(96)00078-1

106. Adessi C.B. i in., C. R. Phys., 10, 2009, 305. https://doi.org/10.1016/j.crhy.2009.05.004

107. Moras G. i in., Adv. Comput. Chem. Phys., 9, 2010, 1.

108. Mak K. i in., Phys. Rev. Lett., 104, 2009, 176404. https://doi.org/10.1103/PhysRevLett.104.176404

109. Tylikowski A. i in., Pan American Congress of Applied Mechanics 2012, PACAM XII.

110. Pérez S. i in., Trends Anal. Chem., 28, 2009, 820. https://doi.org/10.1016/j.trac.2009.04.001

111. Du J. i in., Environ. Toxicol. Pharmacol., 36, 2013, 451.

112. Oberdorster E., Environ. Health Perspect., 112, 2004, 1058.

113. Roberts A.P. i in., Environ. Sci. Technol., 41, 2007, 3025. https://doi.org/10.1021/es062572a

114. Madani S.Y. i in., Nano Rev., 4, 2013, 10.3402. https://doi.org/10.3402/nano.v4i0.21521

115. Yang K. i in., Tox. Curr. Drug Metab., 13, 2012, 1057. https://doi.org/10.2174/138920012802850029

116. Petersen E. i in., Environ. Toxicol. Chem., 31, 2012, 60.

117. Vilatela J. i in., ChemSusChem, 5, 2012, 456. https://doi.org/10.1002/cssc.201100536

118. Kang S. i in., Environ. Sci.Technol., 43, 2009, 2648. https://doi.org/10.1021/es8031506

119. Begum P. i in., Carbon, 49, 2011, 3907. https://doi.org/10.1016/j.carbon.2011.05.029

120. Kotchey G. i in., ACS Nano, 5, 2011, 2098. https://doi.org/10.1021/nn103265h

121. Wang G. i in., Nano Res., 4, 2011, 563. https://doi.org/10.1007/s12274-011-0112-2

122. Gurunathan S. i in., Colloids Surf. B, 102, 2013, 772. https://doi.org/10.1016/j.colsurfb.2012.09.011

123. Kim S.K. i in.. Nature, 457, 2009, 706. https://doi.org/10.1038/nature07719

124. Bonaccorso F. i in., Nature Photon., 4, 2010, 611. https://doi.org/10.1038/nphoton.2010.186

125. Bae S. i in., ACS Nano, 7, 2013, 3130. https://doi.org/10.1021/nn400848j

126. Bae S. i in., Nat. Nanotech., 5, 2010, 5126.

127. Han T. i in., Nature Photon., 6, 2012, 105. https://doi.org/10.1038/nphoton.2011.318

128. Kim K. i in., ACS Appl. Mater. Interfaces, 6, 2014, 3299. https://doi.org/10.1021/am405270y

129. Ryu J. i in., ACS Nano, 8, 2014, 950. https://doi.org/10.1021/nn405754d

130. Kang J. i in., Nanoscale, 4, 2012, 5527. https://doi.org/10.1039/c2nr31317k

131. Kim S.J. i in., Chem. Mater., 26, 2014, 2332. https://doi.org/10.1021/cm500335y

132. Yan C. i in., ACS Nano, 6, 2012, 2096. https://doi.org/10.1021/nn203923n

133. Park J. i in.,. J. Phys. Chem. Lett., 2, 2011, 841.

134. Kang J. i in., Nano Lett., 11, 2011, 5154. https://doi.org/10.1021/nl202311v

135. Leach A.M. i in., Adv. Funct. Mater., 17, 2007, 43. https://doi.org/10.1002/adfm.200600735

136. Partoens B. i in., Phys. Rev. B, 74, 2006, 075404. https://doi.org/10.1103/PhysRevB.74.075404

137. Ciriminna R. i in., Chem. Commun. (Camb), 28, 2015, 7090 https://doi.org/10.1039/C5CC01411E

138. Peng Q. i in., Naotechnol Sci. Appl., 7, 2014, 1

139. Geim A., https://www.youtube.com/watch?v=Pnq3gxvK4kY

140. Novoselov K., https://www.youtube.com/watch?v=lIHvmduEuxU

141. https://www.coursera.org/course/graphene

142. Trauzettel B., Postępy fizyki, 58, 2007, 250

Agnieszka Dąbrowska **Zastosowania grafenu**

1. Ferrari A. i in., Nanoscale, 7, 2015, 4587. https://doi.org/10.1039/C5NR90053K

2. Novoselov K.S. i in., Nature, 490, 2012, 11. https://doi.org/10.1038/nmat3345

3. www.nature.com/naturenanotechnology, 9, 2014.

4. www.ledinside.com.

5. Su K. i in., Prog. Polym. Sci., 39, 2014, 1934.

6. http://head.com/g/it/graphene/.

7. www.alexthomsonracing.com.

8. www.haydale.com.

9. Polityka, 2015, zeszyt 23.

10. Paliotta L. i in., Carbon, 3, 2015, 43.

11. http://www.appliedgraphenematerials.com/.

12. Nathan A. i in., Proc. IEEE, 100, 2012, 1486. https://doi.org/10.1109/JPROC.2012.2190168

13. Gordon R.G., MRS Bull., 2000, 52. https://doi.org/10.1557/mrs2000.151

14. Elias D.C. i in., Science, 323, 2009, 610. https://doi.org/10.1126/science.1167130

15. Nair R.R. i in., Small, 6, 2010, 2877. https://doi.org/10.1002/smll.201001555

16. Dikin D.A. i in., Nature, 448, 2007, 457. https://doi.org/10.1038/nature06016

17. Hernandez Y. i in., Nat. Nanotechnol., 3, 2008, 563.

18. Ramanathan T., Nat. Nanotechnol., 3, 2008, 327.

19. Park S. i in., Chem. Mater., 20, 2008, 6592. https://doi.org/10.1021/cm801932u

20. Liang J. i in., Adv. Funct. Mater., 19, 2009, 2297.

21. Xu Y. i in., Carbon, 47, 2009, 3538. https://doi.org/10.1016/j.carbon.2009.08.022

22. Jang J.Y. i in., Comput. Sci. Technol., 69, 2009, 186.

23. Rafiee M.A. i in., ACS Nano, 4, 2010, 7415. https://doi.org/10.1021/nn102529n

24. Cai D. i in., Nanotechnology, 20, 2009, 085712. https://doi.org/10.1088/0957-4484/20/8/085712

25. Nguyen D.A. i in., Polym. Int., 58, 2009, 412. https://doi.org/10.1002/pi.2549

26. Prud'homme R.K. i in., Patent, 2008045778 A1, 2008.

27. Kim H. i in., Macromolecules, 41, 2008, 3317. https://doi.org/10.1021/ma702385h

28. S. Ansari S. i in., J. Polym. Sci., Part B: Polym. Phys., 47, 2009, 888. https://doi.org/10.1002/polb.21695

29. Cai D. i in., Nanotechnology, 20, 2009, 315708. https://doi.org/10.1088/0957-4484/20/31/315708

30. Kai W. i in., J. Appl. Polym. Sci., 107, 2008, 1395. https://doi.org/10.1002/app.27210

31. Young R.J. i in., Comput. Sci. Technol., 72, 2012, 1459.

32. Vadukumpully S. i in., Carbon, 49, 2011, 198. https://doi.org/10.1016/j.carbon.2010.09.004

33. Teng C. i in., Carbon, 49, 2011, 5107. https://doi.org/10.1016/j.carbon.2011.06.095

34. He F. i in., Adv. Mater., 21, 2009, 710. https://doi.org/10.1002/adma.200990130

35. Eldada L., SPIE OE Mag., 2002, 26.

36. Walker L.S. i in., ACS Nano, 5, 2011, 3182. https://doi.org/10.1021/nn200319d

37. Singh A.P. i in., Nanotechnology, 22, 2011, 465701. https://doi.org/10.1088/0957-4484/22/46/465701

38. Fan Y. i in., Carbon, 48, 2010, 1743. https://doi.org/10.1016/j.carbon.2010.01.017

39. Hu L. i in., J. Appl. Phys., 110, 2011, 033517. https://doi.org/10.1063/1.3610386

40. Dauber-Osguthorpe P. i in., Proteins: Struct., Funct., Genet., 4, 1988, 31. https://doi.org/10.1002/prot.340040106

41. Sengupta R. i in., Prog. Polym. Sci., 36, 2011, 638. 42. www.expresspolymlett.com.

43. Bai X. i in., Carbon, 49, 2011, 1608. https://doi.org/10.1016/j.carbon.2010.12.043

44. Kujawski M. i in., Carbon, 48, 2010, 2409. https://doi.org/10.1016/j.carbon.2010.02.040

45. Kim H. i in., Polymer, 52, 2011, 1837. https://doi.org/10.1016/j.polymer.2011.02.017

46. Mahmoud W.E. i in., Eur. Polym. J., 47, 2011, 1534. https://doi.org/10.1016/j.eurpolymj.2011.05.011

47. Song P. i in., Polymer, 52, 2011, 4001. https://doi.org/10.1016/j.polymer.2011.06.045

48. Yun Y. i in., Carbon, 49, 2011, 3553. https://doi.org/10.1016/j.carbon.2011.04.055

49. Kuila T. i in., Carbon, 49, 2011, 1033. https://doi.org/10.1016/j.carbon.2010.10.031

50. Vadukumpully S. i in., Carbon, 49, 2011, 198. https://doi.org/10.1016/j.carbon.2010.09.004

51. Zha D. i in., Carbon, 49, 2011, 5166. https://doi.org/10.1016/j.carbon.2011.07.032

52. Kuila T. i in., Composites: Part A, 42, 2011, 1856. https://doi.org/10.1016/j.compositesa.2011.08.014

53. Xu Y. i in., Carbon, 47, 2009, 3538. https://doi.org/10.1016/j.carbon.2009.08.022

54. Kim H.M. i in., Thin Solid Films, 519, 2011, 7766. https://doi.org/10.1016/j.tsf.2011.06.016

55. Wu X. i in., Macromol. Res., 18, 2010, 1008. https://doi.org/10.1007/s13233-010-1014-y

56. Liu Yi.T. i in., Mater. Chem. Phys., 130, 2011, 794.

57. Zhang H.B. i in., Polymer, 51, 2010, 1191. https://doi.org/10.1016/j.polymer.2010.01.027

58. Khan U. i in., Carbon, 48, 2010, 4035. https://doi.org/10.1016/j.carbon.2010.07.008

59. www.reportlinker.com/Graphene_Reports.

60. Pang H. i in., Mater. Lett., 64, 2010, 2226. https://doi.org/10.1016/j.matlet.2010.07.001

61. Stankovich S. i in., Nature, 442, 2006, 282. https://doi.org/10.1038/nature04969

62. Kuila T. i in., Prog. Polym. Sci., 35, 2010, 1350.

63. Dabrowska A. i in., Phys. Stat. Solidi B, 1, 2014, 1002.

64. Cataldo A., rozprawa doktorska: "Preparazione e caratterizzazione di compositi polimerici funzionali a base di nanostrutture carboniose", Università di Palermo, Italia 2014.

65. Ajayan P. i in., Nature, 375, 1995, 564. https://doi.org/10.1038/375564a0

66. www.haydale.com/solutions/composite-solutions.

67. Baeg K. i in., Adv. Mater., 25, 2013, 4210. https://doi.org/10.1002/adma.201205361

68. Belmonte M., Adv. Eng. Mater., 8, 2006, 693. https://doi.org/10.1002/adem.200500269

69. Tapasztó O. i in., Chem. Phys. Lett., 511, 2011, 340. https://doi.org/10.1016/j.cplett.2011.06.047

70. Zhan G.D., Appl. Phys. Lett., 83, 2003, 1228. https://doi.org/10.1063/1.1600511

71. Walker L.S. i in., ACS Nano, 5, 2011, 3182. https://doi.org/10.1021/nn200319d

72. Liu J. i in., J. Eur. Ceram. Soc., 32, 2012, 4185.

73. Wu D. i in., Chem. - Eur. J., 17, 2011, 10804. https://doi.org/10.1002/chem.201101333

74. Quintana M. i in., Chem. Commun., 47, 2011, 9330. https://doi.org/10.1039/c1cc13254g

75. Melucci M. i in., J. Mater. Chem., 22, 2012, 18237. https://doi.org/10.1039/c2jm33349j

76. Rao C.N.R. i in., Materials Today, 13, 2010, 34. https://doi.org/10.1016/S1369-7021(10)70163-2

77. Palermo V., Chem. Commun., 49, 2013, 2848. https://doi.org/10.1039/c3cc37474b

78. www.zju.edu.cn.

79. Zhou B. i in., ACS Nano, 5, 2011, 5957. https://doi.org/10.1021/nn201731t

80. Lipińska L. i in., Przem. Chem., 5, 2014, 677.

81. Chen S. i in., ACS Nano, 5, 2011, 321. https://doi.org/10.1021/nn103577g

82. Paton, K. R. i in., Nat. Mater., 13, 2014, 624.

83. Cheng I. i in., Overview of Flexible Electronics Technology, Springer, New York 2009, s. 1. https://doi.org/10.1007/978-0-387-74363-9_1

84. Coatings Technology Handbook (red. A. A. Tracton), CRC Press, Boca Raton 2006.

85. Wong W.S. i in., Materials and Novel Patterning Methods for Flexible Electronics, w Flexible Electronics: Materials and Applications, Springer, New York 2009. https://doi.org/10.1007/978-0-387-74363-9_6

86. Sheats J.R., w Emerging Lithographic Technologies VI (red. L. E. Roxann), SPIE, Santa Clara, USA, 4688, 2002, 240.

87. Kamyshny A. i in., Small, 10, 2014, 3515. https://doi.org/10.1002/smll.201303000

88. Secor E.B. i in., J. Phys. Chem. Lett., 4, 2013, 1347. https://doi.org/10.1021/jz400644c

89. www.itme.edu.pl.

90. Loh K.P. i in., J. Mater. Chem., 20, 2010, 2277. https://doi.org/10.1039/b920539j

91. Chen S. i in., ACS Nano, 5, 2011, 1321. https://doi.org/10.1021/nn103028d

92. http://www.buffalo.edu/news/releases/2012/05/13401.html.

93. Bohm S. i in., Patent no. WO/2011069663, 2011.

94. Dennis R. i in., S. Am. Ceram. Soc. Bull., 92, 2013, 18.

95. Li M. i in., Appl. Surf. Sci., 284, 2013, 804.

96. http://www.imo.org/en/OurWork/Environment/AntifoulingSystems/Documents/FOULING2003.pdf.

97. Ferrari A. i in., Nat. Nanotechnol., 8, 2013, 235.

98. Chen C.Y. i in., Nat. Nanotechnol., 4, 2009, 861.

99. Servant A. i in., Adv. Healthcare Mater., 3, 2014, 1334. https://doi.org/10.1002/adhm.201400016

100. Wells D.B. i in., Nano Lett., 12, 2012, 4117. https://doi.org/10.1021/nl301655d

101. Garaj S. i in., Nature, 467, 2010, 190. https://doi.org/10.1038/nature09379

102. https://agenda.weforum.org/2015/07/can-graphene-make-the-worlds-water-clean/.

103. Kern W., Handbook of Semiconductor Wafer Cleaning Technology: Science, Technology and Applications, Noyes Publication, 1993.

104. Stolyarova E. i in., Proc. Natl. Acad. Sci. U. S. A., 104, 2007, 9209.

105. Ishigami M., Nano Lett., 7, 2007, 1643. https://doi.org/10.1021/nl070613a

106. Cheng Z. i in., Nano Lett., 11, 2011, 767. https://doi.org/10.1021/nl103977d

107. Goossens A.M. i in., Appl. Phys. Lett., 100, 2012, 073110. https://doi.org/10.1063/1.3685504

108. Geim A.K., Science, 324, 2009, 1530. https://doi.org/10.1126/science.1158877

109. Davis R.F. i in., Proc. IEEE, 79, 1991, 677. https://doi.org/10.1109/5.90132

110. Du X. i in., Nature, 462, 2009, 192. https://doi.org/10.1038/nature08522

111. Ci L. i in., Nat. Mater., 9, 2010, 430. https://doi.org/10.1038/nmat2711

112. Zhou S.Y. i in., Nat. Mater., 6, 2007, 770. https://doi.org/10.1038/nrd2434

113. Kawasaki T. i in., Surf. Rev. Lett., 9, 2002, 1459 https://doi.org/10.1142/S0218625X02003883

114. Peng X. i in., Nano Lett., 8, 2008, 4464. https://doi.org/10.1021/nl802409q

115. Wei D. i in., Nano Lett., 9, 2009, 1752. https://doi.org/10.1021/nl803279t

116. Cervantes-Sodi F. i in., Phys. Rev. B, 77, 2008, 165427. https://doi.org/10.1103/PhysRevB.77.165427

117. Balog R. i in., Nat. Mater., 9, 2010, 315. https://doi.org/10.1038/nmat2710

118. Nair R., Small, 6, 2010, 2877. https://doi.org/10.1002/smll.201001555

119. Mertens R., The Graphene Handbook. A Guide to Graphene Technology, Industry and Market, Amazon. co.uk, Marston Gate, Wielka Brytania 2015, s.35.

120. Kim U., Nanotechnology, 24, 2013, 145501. https://doi.org/10.1088/0957-4484/24/14/145501

121. www.graphenea.com.

122. Wu J. i in., ACS Nano, 4, 2010, 43. https://doi.org/10.1021/nn900728d

123. Wang H. i in., IEEE Electron Device Lett., 30, 2009, 547. https://doi.org/10.1109/LED.2009.2016443

124. Tse D., Cambridge University Press, 2005.

125. Beard M.C. i in., J. Phys. Chem. B, 106, 2002, 7146. https://doi.org/10.1021/jp020579i

126. Sordan R. i in., Appl. Phys. Lett., 94, 2009, 073305. https://doi.org/10.1063/1.3079663

127. Zang X. i in., Microelectronic Eng., 132, 2015, 192. https://doi.org/10.1016/j.mee.2014.10.023

128. Hong S. i in., Nanotechnology, 23, 2012, 455704. https://doi.org/10.1088/0957-4484/23/45/455704

129. Liu M., J. Am. Chem. Soc., 133, 2011, 15221. https://doi.org/10.1021/ja204953k

130. Molitor F., Appl. Phys. Lett., 94, 2009, 222107. https://doi.org/10.1063/1.3148367

131. Pan D. i in., Adv. Mater., 22, 2010, 734. https://doi.org/10.1002/adma.200902825

132. Zhu S. i in., Chem. Commun., 47, 2011, 6858. https://doi.org/10.1039/c1cc11122a

133. Nathan A. i in., Proc. IEEE, 100, 2012, 1486. https://doi.org/10.1109/JPROC.2012.2190168

134. Fiori G. i in., Nat. Nanotechnol., 9, 2014, 768.

135. Koenig S.P. i in., Nat. Nanotechnol., 6, 2011, 543.

136. Lee J. i in., ACS Nano, 7, 2013, 7744. https://doi.org/10.1021/nn403487y

137. Ariananda D. i in., 4th Int. Conf. Cognitive Radio Oriented Wireless Network and Communications, 2009, s. 1.

138. Di C. i in., Adv. Mater., 20, 2008, 3289. https://doi.org/10.1002/adma.200800150

139. Kumar B. i in., Nano Lett., 13, 2013,1962. https://doi.org/10.1021/nl304734g

140. Jakubowska M. i in., Elektronika, 6, 2012, 97.

141. Li G. i in., Opt. Express., 19, 2011, 20435. https://doi.org/10.1364/OE.19.020435

142. Liao A.D. i in., Phys. Rev. Lett., 106, 2011, 256801. https://doi.org/10.1103/PhysRevLett.106.256801

143. Wu Z.S. i in., Adv. Mater., 21, 2009, 1756.

144. Bonaccorso F. i in., Science, 347, 2015, 6217.

145. Gilje S. i in., Nano Lett., 7, 2007, 3394. https://doi.org/10.1021/nl0717715

146. Wang X. i in., Nano Lett., 8, 2008, 323. https://doi.org/10.1021/nl072838r

147. Becerril H.A. i in., ACS Nano, 2, 2008, 463. https://doi.org/10.1021/nn700375n

148. Sahu D. i in., Appl. Surf. Sci., 252, 2006, 7509. https://doi.org/10.1016/j.apsusc.2005.09.021

149. Zhu Y. i in., ACS Nano, 5, 2011, 6472. https://doi.org/10.1021/nn201696g

150. Tung V. i in., Nano Lett., 9, 2009, 1949. https://doi.org/10.1021/nl9001525

151. Wei D. i in., J. Mater. Chem., 21, 2011, 9762. https://doi.org/10.1039/c1jm10826c

152. Winter M. i in., Chem. Rev., 104, 2004, 4245. https://doi.org/10.1021/cr020730k

153. Wang G. i in., Carbon, 47, 2015, 2049. https://doi.org/10.1016/j.carbon.2009.03.053

154. Bruce P.G. i in., Nat. Mater., 11, 2012, 19. https://doi.org/10.1038/nmat3191

155. Wilson A. i in., J. Appl. Phys., 77, 1995, 2363. https://doi.org/10.1063/1.358759

156. Yu Y. i in., Electrochim. Acta, 54, 2009, 7227. https://doi.org/10.1016/j.electacta.2009.07.028

157. Prosini P. i in., Electrochim. Acta, 46, 2001, 3517. https://doi.org/10.1016/S0013-4686(01)00631-4

158. Wang D. i in., ACS Nano, 4, 2010, 1587. https://doi.org/10.1021/nn901819n

159. Wang J. i in., J. Power Sources, 196, 2011, 7030. https://doi.org/10.1016/j.jpowsour.2010.09.106

160. Hu L. i in., Nat. Commun., 4, 2013, 1687.

161. Yang S.B. i in., Angew. Chem., Int. Ed., 49, 2010, 8408. https://doi.org/10.1002/anie.201003485

162. Yoo E.J. i in., Nano Lett., 8, 2008, 2277. https://doi.org/10.1021/nl800957b

163. Paek S.M. i in., Nano Lett., 9, 2008, 72. https://doi.org/10.1021/nl802484w

164. Ai W. i in., Adv. Mater., 26, 2014, 6186.

165. Shi Y. i in., Nano Lett., 13, 2013, 4715. https://doi.org/10.1021/nl402237u

166. Shiva K. i in., Nano Energy, 2, 2013, 787. https://doi.org/10.1016/j.nanoen.2013.02.001

167. Kim H. i in., Sci. Rep., 4, 2014, 5278. https://doi.org/10.1038/srep06291

168. Cao Y. i in., Phys. Chem. Chem. Phys. Lett., 13, 2011, 7660. https://doi.org/10.1039/c0cp02477e

169. Yang Y. i in., Chem. Soc. Rev., 42, 2013, 3018. https://doi.org/10.1039/c2cs35256g

170. Tang C. i in., Adv. Mater., 26, 2014, 6100.

171. Kim T.Y. i in., ACS Nano, 5, 2011, 436. https://doi.org/10.1021/nn2014358

172. Yuan L. i in., ACS Nano, 6, 2012, 656. https://doi.org/10.1021/nn2041279

173. Wang Y. i in., J. Phys. Chem. C, 113, 2009, 13103. https://doi.org/10.1021/jp902214f

174. Bondavalli P. i in., J. Electrochem. Soc., 160, 2013, A1. https://doi.org/10.1149/2.048304jes

175. Yang X. i in., Science, 341, 2013, 534. https://doi.org/10.1126/science.1239089

176. Stoller M.D. i in., Nano Lett., 8, 2008, 3498. https://doi.org/10.1021/nl802558y

177. Pope M.A. i in., J. Electrochem. Soc., 160, 2013, A1653. https://doi.org/10.1149/2.017310jes

178. Wu Q. i in., ACS Nano, 4, 2010, 1963. https://doi.org/10.1021/nn1000035

179. Leng K. i in., Nano Res., 6, 2013, 581. https://doi.org/10.1007/s12274-013-0334-6

180. Zhu Y. i in., Science, 332, 2011, 1537. https://doi.org/10.1126/science.1200770

181. Frackowiak E. i in., Carbon, 39, 2015, 937. https://doi.org/10.1016/S0008-6223(00)00183-4

182. www.skeletontech.com.

183. Jeon I. i in., Sci. Rep., 3, 2013, 1810. https://doi.org/10.1038/srep03269

184. Choi H. i in., Nano Energy, 1, 2012, 534. https://doi.org/10.1016/j.nanoen.2012.05.001

185. Tozzini V. i in., J. Phys. Chem. C, 115, 2011, 25523. https://doi.org/10.1021/jp208262r

186. Dimitrakakis G.K. i in., Nano Lett., 8, 2008, 3166. https://doi.org/10.1021/nl801417w

187. S. Goler i in., J. Phys. Chem. C, 117, 2013, 11506. https://doi.org/10.1021/jp4017536

188. http://www1.eere.energy.gov/hydrogenandfuelcells/storage/current_technology.html.

189. Cho M. i in., J. Chem. Phys., 104, 1996, 8730. https://doi.org/10.1063/1.471562

190. Zecho T. i in., J. Chem. Phys., 117, 2002, 8486. https://doi.org/10.1063/1.1511729

191. Jeloaica L. i in., Chem. Phys. Lett., 300, 1999, 157. https://doi.org/10.1016/S0009-2614(98)01337-2

192. Sha X. i in., Surf. Sci., 496, 2002, 318. https://doi.org/10.1016/S0039-6028(01)01602-8

193. Ferro Y. i in., J. Chem. Phys., 116, 2002, 8124. https://doi.org/10.1063/1.1469600

194. Hornekaer L. i in., Phys. Rev. Lett., 97, 2006, 186102.

195. Andree A. i in., Chem. Phys. Lett., 425, 2006, 99. https://doi.org/10.1016/j.cplett.2006.05.015

196. Hornekaer L., Chem. Phys. Lett., 446, 2007, 237. https://doi.org/10.1038/446237a

197. Balog R. i in., J. Am. Chem. Soc., 131, 2009, 8744. https://doi.org/10.1021/ja902714h

198. Guisinger N.P. i in., Nano Lett., 9, 2009, 1462. https://doi.org/10.1021/nl803331q

199. Zou Z. i in., Nature, 414, 2001, 625. https://doi.org/10.1038/414625a

200. Inagaki M.J., Mater. Res., 4, 1989, 1560. https://doi.org/10.1557/JMR.1989.1560

201. Deng W. i in., Phys. Rev. Lett., 92, 2004, 166103. https://doi.org/10.1103/PhysRevLett.92.166103

202. Li S. i in., ACS Nano, 4, 2010, 3169. https://doi.org/10.1021/nn100551j

203. Wang H. i in., Small, 9, 2013, 1266. https://doi.org/10.1002/smll.201203040

204. Bernardi M i in.., Nano Lett., 13, 2013, 3664. https://doi.org/10.1021/nl401544y

205. Li X. i in., Adv. Mater., 22, 2010, 2743. https://doi.org/10.1002/adma.200904383

206. Liu M. i in., Nature, 501, 2013, 395. https://doi.org/10.1038/nature12509

207. Shi E. i in., Nano Lett., 13, 2013, 1776. https://doi.org/10.1021/nl400353f

208. Roy-Mayhew J.D. i in., ACS Nano, 4, 2010, 6203. https://doi.org/10.1021/nn1016428

209. Wu Y. i in., J. Phys. Chem, C, 117, 2013, 11968. https://doi.org/10.1021/jp402529c

210. Bae S. i in., Nat. Nanotechnol., 5, 2010, 574.

211. Bonaccorso F. i in., Science, 347, 2015, 1246501. https://doi.org/10.1126/science.1246501

212. Li S. i in., ACS Nano, 4, 2010, 3169. https://doi.org/10.1021/nn100551j

213. Stylianakis M. i in., Carbon, 50, 2012, 5554. https://doi.org/10.1016/j.carbon.2012.08.001

214. Green M.A., Solar Cells: Operating Principles, Technology and Systems Applications, Prentice-Hall, Inc., Englewood Cliffs 1982, s. 288.

215. Yong V. i in., Small, 6, 2009, 313. https://doi.org/10.1002/smll.200901364

216. Wang Y. i in., ACS Nano, 6, 2012, 1018. https://doi.org/10.1021/nn204362p

217. Manga K.K. i in., Adv. Mater., 24, 2012, 1697. https://doi.org/10.1002/adma.201104399

218. Yan X. i in., Nano Lett., 10, 2010, 1869. https://doi.org/10.1021/nl101060h

219. Sootsman R. i in., Angew. Chem., Int. Ed., 48, 2009, 8616. https://doi.org/10.1002/anie.200900598

220. Balandin A. i in., Nano Lett., 8, 2008, 902. https://doi.org/10.1021/nl0731872

221. Haskins J. i in., ACS Nano, 5, 2011, 3779. https://doi.org/10.1021/nn200114p

222. Chen S. i in., Nat. Mater., 11, 2012, 203. https://doi.org/10.1038/nmat3207

223. Yang N. i in., ACS Nano, 4, 2010, 887. https://doi.org/10.1021/nn901660v

224. Xu F. i in., J. Phys. Chem. C, 117, 2013, 8619. https://doi.org/10.1021/jp312379b

225. http://www.ichip.pw.edu.pl/pl/katedry-zaklady/138.

226. Wang Z.L. i in., Materials Today, 15, 2012, 532. https://doi.org/10.1016/S1369-7021(13)70011-7

227. Wolf S. i in., J. Res. Dev., 50, 2006, 101. https://doi.org/10.1147/rd.501.0101

228. Datta S. i in., Appl. Phys. Lett., 56, 1990, 665. https://doi.org/10.1063/1.102730

229. Roche S. i in., J. Phys. D: Appl. Phys., 47, 2014, 094011. https://doi.org/10.1088/0022-3727/47/9/094011

230. Lundeberg M.B. i in., Phys. Rev. Lett., 110, 2013, 156601. https://doi.org/10.1103/PhysRevLett.110.156601

231. Grünberg P., Rev. Mod. Phys., 80, 2008, 1531. https://doi.org/10.1103/RevModPhys.80.1531

232. Fert A., Angew. Chem., Int. Ed., 47, 2008, 5956. https://doi.org/10.1002/anie.200801093

233. Chappert C. i in., Nat. Mater., 6, 2007, 813. https://doi.org/10.1038/nmat2024

234. http://www.nobelprize.org/mediaplayer/index.php?id=1418.

235. Dieny B. i in., J. Appl. Phys., 69, 1991, 4774. https://doi.org/10.1063/1.348252

236. Soldano C. i in., Carbon, 48, 2015, 2127. https://doi.org/10.1016/j.ifacol.2015.06.403

237. Tombros N. i in., Nature, 448, 2007, 571. https://doi.org/10.1038/nature06037

238. Han W. i in., Phys. Rev. Lett., 107, 2011, 047207. https://doi.org/10.1103/PhysRevLett.107.047207

239. Servant A. i in., Adv. Healthcare Mater., 3, 2014, 1334. https://doi.org/10.1002/adhm.201400016

240. He C. i in., Appl. Phys. Lett., 95, 2009, 232101. https://doi.org/10.1063/1.3271177

241. Zheng Y. i in., Phys. Rev. Lett., 105, 2010, 166602.

242. Dlubak B. i in., Nat. Phys., 8, 2012, 557. https://doi.org/10.1038/nphys2331

243. McClure J., Phys. Rev., 104, 1956, 666. https://doi.org/10.1103/PhysRev.104.666

244. Yang H. i in., Phys. Rev. B: Condens. Matter Mater. Phys., 84, 2011, 214404.

245. Nair R. i in., Nat. Phys., 8, 2012, 199.

246. Hong J. i in., Small, 9, 2011, 1175. https://doi.org/10.1002/smll.201002244

247. Kochan D. i in., Phys. Rev. Lett., 112, 2014, 116602. https://doi.org/10.1103/PhysRevLett.112.116602

248. Van Tuan D. i in., Nat. Phys., 10, 2014, 857. https://doi.org/10.1038/nphys3083

249. Koga T., Phys. Rev. Lett., 89, 2002, 046801.

250. Dyakonov M.I. i in., Sov. Phys. JETP Lett., 13, 1971, 467. https://doi.org/10.1070/PU1971v013n05ABEH004221

251. Valenzuela S. i in., Nature, 442, 2006, 176. https://doi.org/10.1038/nature04937

252. Loss D. i in., Phys. Rev. A, 57, 1998, 120. https://doi.org/10.1103/PhysRevA.57.120

253. Li X. i in., Opt. Photonics News, 15, 2004, 38. https://doi.org/10.1364/OPN.15.000038

254. Trauzettel B. i in., Nat. Phys., 3, 2007, 192. https://doi.org/10.1038/nphys544

255. Courtillot V. i in., Annu. Rev. Earth Planet. Sci., 16, 1988, 435. https://doi.org/10.1146/annurev.ea.16.050188.002133

256. Wolf S.A. i in., IEEE Trans. Magn., 36, 2000, 2748. https://doi.org/10.1109/20.908580

257. Echtermeyer T. i in., Nat. Commun., 2, 2011, 458. https://doi.org/10.1038/ncomms1464

258. Liu M. i in., Nature, 474, 2011, 64. https://doi.org/10.1038/nature10067

259. Echtermeyer T.J. i in., Nat. Commun., 2, 2011, 458. https://doi.org/10.1038/ncomms1464

260. Dawlaty J. i in., Appl. Phys. Lett., 92, 2008, 042116. https://doi.org/10.1063/1.2837539

261. Moser J. i in., Appl. Phys. Lett., 91, 2007, 163513. https://doi.org/10.1063/1.2789673

262. Li Z., Nat. Phys., 4, 2008, 532. https://doi.org/10.1038/ncpendmet0932

263. Das A. i in., Nat. Nanotechnol., 3, 2008, 210.

264. Khrapach I. i in., Adv. Mater., 24, 2012, 2844. https://doi.org/10.1002/adma.201200489

265. Efetov D. i in., Phys. Rev. Lett., 105, 2010, 256805. https://doi.org/10.1103/PhysRevLett.105.159702

266. Mayorov A. i in., Nano Lett., 11, 2011, 2396. https://doi.org/10.1021/nl200758b

267. Koppens F. i in., Nano Lett., 11, 2011, 3370. https://doi.org/10.1021/nl201771h

268. Konstantatos G. i in., Nat. Nanotechnol., 7, 2012, 363.

269. Xia F. i in., Nat. Nanotechnol., 4, 2009, 839.

270. Mueller T. i in., Nature Photon., 4, 2010, 297. https://doi.org/10.1038/nphoton.2010.40

271. Wright A. i in., Phys. Rev. Lett., 103, 2009, 207401. https://doi.org/10.1103/PhysRevLett.103.207401

272. Freitag M. i in., Nat. Commun., 4, 2013, 1951. https://doi.org/10.1038/ncomms2951

273. Ji H. i in., J. Lightwave Technol., 29, 2011, 426. https://doi.org/10.1109/JLT.2010.2100368

274. Katsnelson M. i in., Nat. Phys., 2, 2006, 620. https://doi.org/10.1038/nphys384

275. Keller U. i in., IEEE J. Quantum Electron., 2, 1996, 435. https://doi.org/10.1109/2944.571743

276. Sun Z. i in., ACS Nano, 4, 2010, 803. https://doi.org/10.1021/nn901703e

277. Xu J.L. i in.,, Appl. Phys. Lett., 99, 2011, 261107. https://doi.org/10.1063/1.3672213

278. Noginov M. i in., Nature, 460, 2009, 1110. https://doi.org/10.1038/nature08318

279. Ramakrishnan G. i in., Opt. Express, 17, 2009, 16092. https://doi.org/10.1364/OE.17.016092

280. Bao Q. i in., Nature Photon., 5, 2011, 411. https://doi.org/10.1038/nphoton.2011.102

281. Bass M. i in., w Handbook of Optics IV (red. Jay M.), McGraw-Hill, New York 2001.

282. Tang L. i in., Microelectronic Eng., 145, 2015, 58. https://doi.org/10.1016/j.mee.2015.03.010

283. Schuller J. i in., Nat. Mater., 9, 2010, 193. https://doi.org/10.1038/nmat2630

284. Popa M. i in., Colloids Surf., A, 303, 2007, 184. https://doi.org/10.1016/j.colsurfa.2007.03.050

285. Wang Y. i in., J. Am. Chem. Soc., 124, 2002, 2293. https://doi.org/10.1021/ja016711u

286. Neouze M. i in., Monatsh. Chem., 139, 2008, 183. https://doi.org/10.1007/s00706-007-0775-2

287. Zeng S. i in., Plasmonics, 6, 2011, 491. https://doi.org/10.1007/s11468-011-9228-1

288. Hurbe-Ek J. i in., Mater. Lett., 142, 2015, 75. https://doi.org/10.1016/j.matlet.2014.11.149

289. Engel M. i in., Nat. Commun., 3, 2012, 906. https://doi.org/10.1038/ncomms1911

290. Prechtel L. i in., Nat. Commun., 3, 2012, 646. https://doi.org/10.1038/ncomms1656

291. Bao L. i in., Adv. Funct. Mater., 19, 2009, 3077.

292. Schedin F. i in., ACS Nano, 4, 2010, 5617. https://doi.org/10.1021/nn1010842

293. Kneipp K. i in., Chem. Rev., 99, 1999, 2957. https://doi.org/10.1021/cr980133r

294. Coe S. i in., Nature, 420, 2002, 800. https://doi.org/10.1038/nature01217

295. Lee J. i in., Adv. Mater., 12, 2000, 1102. https://doi.org/10.1002/1521-4095(200008)12:15<1102::AID-ADMA1102>3.0.CO;2-J

296. Lampert C., Sol. Energy Mater. Sol. Cells, 52, 1998, 207. https://doi.org/10.1016/S0927-0248(97)00279-1

297. Fergason J., US Patent, 4,435,047, 1984.

298. Craighead H. i in., Appl. Phys. Lett., 40, 1982, 22. https://doi.org/10.1063/1.92904

299. Tarka J. i in., Optical Materials Express, 4, 2014, 1981. https://doi.org/10.1364/OME.4.001981

300. Soboń G. i in., Optics Express, 20, 2012, 19463. https://doi.org/10.1364/OE.20.019463

301. www.energa.pl.

302. http://www.basf.com/group/corporate/chemistryworldtour/en/innovationen/smart-forvision.

303. Hill E. i in., IEEE Sens. J., 11, 2011, 3161. https://doi.org/10.1109/JSEN.2011.2167608

304. Rangel N. i in., J. Chem. Phys., 132, 2010, 125102. https://doi.org/10.1063/1.3364863

305. Schedin F. i in., Nat. Mater., 6, 2007, 652. https://doi.org/10.1038/nmat1967

306. Bae S. i in., Carbon, 51, 2013, 236. https://doi.org/10.1016/j.carbon.2012.08.048

307. Lee C. i in., Thin Solid Films, 520, 2012, 5459. https://doi.org/10.1016/j.tsf.2012.03.095

308. He Q. i in., Chem. Sci., 3, 2012, 1764. https://doi.org/10.1039/c2sc20205k

309. Wong C. i in., J. Micromech. Microeng., 20, 2010, 115029. https://doi.org/10.1088/0960-1317/20/11/115029

310. Frank O. i in., Nat. Commun., 2, 2011, 255.

311. Pisana S. i in., Nano Lett., 10, 2010, 341. https://doi.org/10.1021/nl903690y

312. Schedin F. i in., Nat. Mater., 6, 2007, 652. https://doi.org/10.1038/nmat1967

313. Lu Y. i in., Appl. Phys. Lett., 97, 2010, 083107. https://doi.org/10.1063/1.3483128

314. Salehi-Khojin A. i in., Adv. Mater., 24, 2012, 53. https://doi.org/10.1002/adma.201102663

315. Avdoshenko S. i in., Nanoscale, 4, 2012, 3168. https://doi.org/10.1039/c2nr30097d

316. Novoselov K. i in., Science, 315, 2007, 1379. https://doi.org/10.1126/science.1137201

317. Janssen T. i in., Rep. Prog. Phys., 76, 2013, 104501. https://doi.org/10.1088/0034-4885/76/10/104501

318. Giesbers A. i in., Appl. Phys. Lett., 93, 2008, 222109. https://doi.org/10.1063/1.3043426

319. Schopfer F. i in., J. Appl. Phys., 102, 2007, 054903. https://doi.org/10.1063/1.2776371

320. Liu X. i in., Nano Lett., 10, 2010, 1623. https://doi.org/10.1021/nl9040912

321. Wang L. i in., Science, 342, 2013, 614. https://doi.org/10.1126/science.1244358

322. Rondin L. i in., Appl. Phys. Lett., 100, 2012, 153118. https://doi.org/10.1063/1.3703128

323. Cocco G. i in., Phys. Rev. B, 81, 2010, 241412(R). https://doi.org/10.1103/PhysRevB.81.241412

324. Gass M. i in., Nat. Nanotechnol., 3, 2008, 676.

325. Lau C. i in., Materials Today, 15, 2012, 238. https://doi.org/10.1016/S1369-7021(12)70114-1

326. Chen G. i in., Appl. Phys. Lett., 101, 2012, 053119. https://doi.org/10.1063/1.4742327

327. Sakhaee-Pour A., Solid State Commun., 145, 2008, 168. https://doi.org/10.1016/j.ssc.2007.10.032

328. Eichler A. i in., Nat. Nanotechnol., 6, 2011, 339. https://doi.org/10.1007/978-3-642-10462-6_18

329. Kim S. i in., Nanotechnology, 21, 2010, 105710. https://doi.org/10.1088/0957-4484/21/10/105710

330. Chung M. i in., Sens. Actuators, B, 169, 2012, 387. https://doi.org/10.1016/j.snb.2012.05.031

331. Sundmaeker H. i in., Tech. Rep., 3, 2010, 57.

332. http://www.idc.com/getdoc.jsp?containerId=prUS23398412.

333. www.piap.pl.

334. Janczak D. i in., Sensors, 14, 2014, 17304. https://doi.org/10.3390/s140917304

335. Freitas R., Nanomedicine, vol. I: Basic capabilities, Landes Bioscience, Georgetown 1999.

336. Xie J. i in., Adv. Drug Delivery Rev., 62, 2010, 1064. https://doi.org/10.1016/j.addr.2010.07.009

337. Świątkowski A. i in., Problemy współczesnej elektrochemii, Wyd. Naukowe AKAPIT, Kraków 2014, s. 33.

338. Torchilin V.P., AAPS J., 9(2), 2007, E128. https://doi.org/10.1208/aapsj0902015

339. Bitounis D. i in., Adv. Mater., 25, 2013, 2258. https://doi.org/10.1002/adma.201203700

340. Loh K. i in., Nat. Chem., 2, 2010, 1015. https://doi.org/10.1038/nchem.907

341. Eda G. i in., Adv. Mater., 22, 2009, 505. https://doi.org/10.1002/adma.200901996

342. Huang P. i in., Theranostics, 1, 2011, 240. https://doi.org/10.7150/thno/v01p0240

343. Michalet X. i in., Science, 307, 2005, 538. https://doi.org/10.1126/science.1104274

344. Colvin V., Nat. Biotechnol., 21, 2003, 1166. https://doi.org/10.1038/nbt875

345. Zhang F. i in., J. Phys. Chem. C, 114, 2010, 8469. https://doi.org/10.1021/jp101073b

346. Zhang L. i in., Small, 6, 2010, 537. https://doi.org/10.1002/smll.200901680

347. Bao H. i in., Small, 7, 2011, 1569. https://doi.org/10.1002/smll.201100191

348. Liu Z. i in., Angew. Chem., Int. Ed., 46, 2007, 2023.

349. Hom C. i in., Small, 6, 2010, 1185. https://doi.org/10.1002/smll.200901966

350. Xia T. i in., ACS Nano, 3, 2009, 3273. https://doi.org/10.1021/nn900918w

351. Zhang X. i in., ACS Nano, 3, 2009, 2609. https://doi.org/10.1021/nn900865g

352. Chertok B. i in., Biomaterials, 31, 2010, 6317. https://doi.org/10.1016/j.biomaterials.2010.04.043

353. Son S. i in., Biomaterials, 31, 2010, 6344. https://doi.org/10.1016/j.biomaterials.2010.04.047

354. Sanchez V.C. i in., Chem. Res. Toxicol., 25, 2012, 15. https://doi.org/10.1021/tx200339h

355. Yang K. i in., Nano Lett., 10, 2011, 3318. https://doi.org/10.1021/nl100996u

356. Yang K. i in., ACS Nano, 5, 2010, 516. https://doi.org/10.1021/nn1024303

357. Feng L. i in., Nanomedicine, 6, 2011, 317. https://doi.org/10.2217/nnm.10.158

358. Bussy C. i in., Acc. Chem. Res., 46, 2013, 692. https://doi.org/10.1021/ar300199e

359. Jastrzębska A. i in., J. Nanopart. Res., 14, 2012, 1320. https://doi.org/10.1007/s11051-012-1320-8

360. Hu X. i in., Chem. Rev., 113, 2013, 3815. https://doi.org/10.1021/cr300045n

361. Bianco A., Angew. Chem., Int. Ed., 52, 2013, 4986. https://doi.org/10.1002/anie.201209099

362. Schinwald A. i in., ACS Nano, 6, 2012, 736. https://doi.org/10.1021/nn204229f

363. Duch M. i in., Nano Lett., 11, 2011, 5201. https://doi.org/10.1021/nl202515a

364. Hinzman M. i in., Int. J. Nanomedicine, 9, 2014, 2409.

365. Singh S., ACS Nano, 5, 2011, 4987. https://doi.org/10.1021/nn201092p

366. Zhang Y. i in., ACS Nano, 4, 2010, 3181. https://doi.org/10.1021/nn1007176

367. Hu W. i in., ACS Nano, 4, 2010, 4317. https://doi.org/10.1021/nn101097v

368. Zhang S. i in., Carbon, 49, 2011, 4040. https://doi.org/10.1016/j.carbon.2011.05.056

369. Yue H. i in., Biomaterials, 33, 2012, 4013. https://doi.org/10.1016/j.biomaterials.2012.02.021

370. Liu X. i in., Biomaterials, 32, 2011, 144. https://doi.org/10.1016/j.biomaterials.2010.08.096

371. Biris A.R. i in., J. Phys. Chem. C, 115, 2011, 18967. https://doi.org/10.1021/jp203474y

372. Liu Z. i in., Nano Res., 2, 2009, 85. https://doi.org/10.1007/s12274-009-9009-8

373. Feng L. i in., Adv. Mater., 24, 2012, 125.

374. Misra S.K. i in., Small, 8, 2012, 131. https://doi.org/10.1016/B978-0-12-384954-0.00005-0

375. Hess L. i in., Adv. Mater., 23, 2011, 5045.

376. Zhang N. i in., Biomaterials, 32, 2011, 9374. https://doi.org/10.1016/j.biomaterials.2011.08.065

377. Nayak T. i in., ACS Nano, 5, 2011, 4670. https://doi.org/10.1021/nn200500h

378. Baron S. i in., Medical Microbiology, wyd. 4, Univ. of Texas Medical Branch, Galveston 1996.

379. Akhavan O. i in., ACS Nano, 4, 2010, 5731. https://doi.org/10.1021/nn101390x

380. Sawangphruk M. i in., Carbon, 50, 2012, 5156. https://doi.org/10.1016/j.carbon.2012.06.056

381. Hu W. i in., ACS Nano, 4, 2010, 4317. https://doi.org/10.1021/nn101097v

382. http://www.rmf24.pl/nauka/news-komorki-macierzyste-z-uj-pomoga-w-badaniach-nad-cukrzyca,-nId,1684315.

383. Liao K. i in., ACS Appl. Mater. Interf., 3, 2011, 2607. https://doi.org/10.1021/am200428v

384. Liu S. i in., ACS Nano, 5, 2011, 6971. https://doi.org/10.1021/nn202451x

385. Friedrich J. i in., Carbon, 48, 2010, 3884. https://doi.org/10.1016/j.carbon.2010.06.054

386. Choi H. i in., Nat. Nanotechnol., 5, 2010, 42.

387. Burns M. i in., Science, 282, 1998, 484. https://doi.org/10.1126/science.282.5388.484

388. Kuila T. i in., Biosens. Bioelectron., 26, 2011, 4637.

389. Vashist S. i in., Carbon, 84, 2015, 519. https://doi.org/10.1016/j.carbon.2014.12.052

390. Backes C. i in., Nat. Commun., 5, 2014, 4576.

391. Yang X. i in., J. Phys. Chem. C, 112, 2008, 17554. https://doi.org/10.1021/jp806751k

392. Wang L. i in., Chem. Commun., 47, 2011, 7794. https://doi.org/10.1039/c1cc11373a

393. Xu X. i in., Eur. J. Pharm. Biophys., 70, 2008, 165.

394. Fromherz P., Nanoelectronics and Information Technology, Wiley-VCH Verlag, Berlin 2003, s. 781.

395. Nayak T. i in., ACS Nano, 5, 2011, 4670. https://doi.org/10.1021/nn200500h

396. Zrenner E., Science, 295, 2002, 1022. https://doi.org/10.1126/science.1067996

397. Moore D. i in., Nat. Neurosci., 12, 2009, 686. https://doi.org/10.1038/nn.2326

398. Matthaei M. i in., Ophthalmologica, 225, 2011, 187. https://doi.org/10.1159/000318042

399. Sha J. i in., ACS Nano, 7, 2013, 8857. https://doi.org/10.1021/nn403323k

400. Brolo A., Nat. Photonics, 6, 2012, 709. https://doi.org/10.1038/nphoton.2012.266

401. Hoa X. i in., Biosens. Bioelectron., 23, 2007, 151.

402. Song B., ChemPhysChem, 11, 2010, 585. https://doi.org/10.1002/cphc.200900743

403. Reed J., Nano Lett., 12, 2012, 4090. https://doi.org/10.1021/nl301555t

404. Choi S. i in., Opt. Express, 19, 2011, 458. https://doi.org/10.1364/OE.19.000458

405. Kravets V. i in., Sci. Rep., 2014, 5517.

406. Nandkishore R., Nat. Phys., 8, 2012, 158. https://doi.org/10.1038/nphys2208

407. Yang H.X. i in., Phys. Rev. Lett., 110, 2013, 046603. https://doi.org/10.1103/PhysRevLett.110.096102

408. Yazyev O.V., Rep. Prog. Phys., 73, 2010, 056501. https://doi.org/10.1088/0034-4885/73/5/056501

409. http://www.iter.org/construction.

410. Meador M. i in., NASA Technology Roadmap: Nanotechnology, http://www.nasa.gov/offices/oct/home/roadmaps/#.U9rA0iRpGrY, 2012.

411. Novoselov K. i in., Proc. Natl. Acad. Sci. U. S. A., 102, 2005, 10451.

412. Joensen P. i in., Mater. Res. Bull., 21, 1986, 457. https://doi.org/10.1016/0025-5408(86)90011-5

413. Frindt R. i in., Proc. Roy. Soc. London, Ser. A, 273, 1963, 69.

414. Frindt R., Phys. Rev., 140, 1965, A535. https://doi.org/10.1103/PhysRev.140.A536

415. Wilson J.A. i in., Adv. Phys., 18, 1969, 193. https://doi.org/10.2307/2346264

416. Roosa S., Sustainable Development Handbook, Fairmont Press, Inc., 2010.

417. Britnell L. i in., Science, 335, 2012, 947. https://doi.org/10.1126/science.1218461

418. Randviir E. i in., Materials Today, 17, 2014, 426. https://doi.org/10.1016/j.mattod.2014.06.001

419. Chen D. i in., Materials Today, 17, 2014, 554. https://doi.org/10.1016/j.mattod.2014.04.002

420. Gao H. i in., Biosensors and Bioelectronics, 65, 2015, 404. https://doi.org/10.1016/j.bios.2014.10.067

421. http://www.nanomedicaldiagnostics.com.

422. http://www.scientificamerican.com/article/new-form-of-ice-forms-in-graphene-sandwich/

423. http://perfscience.com/content/2141945_graphene-could-be-used-to-create-fuel-free-spacecraft.

Andrzej Huczko **Patenty w dziedzinie grafenu** .

1. Tanifuji M., NIMS NOW, 13(8), 2013, 10. https://doi.org/10.1097/01.NNN.0000444218.11212.3f

2. Endo M., CHEMTECH, 18(9), 1988, 568. https://doi.org/10.1016/S0190-9622(88)80284-6

3. Iijima S., Nature, 354, 1991, 56. https://doi.org/10.1038/354056a0

4. Schmid M., XXVIIth Int. Winterschool IWEPNM 2013, 2-9 March 2013, Kirchberg, Austria, Książka streszczeń, s. 81.

5. Bacon R., US Patent 2,957,757; 25.X.1960. https://doi.org/10.2307/2090157

6. Novoselov K.S. i in., Science, 306, 2004, 666. https://doi.org/10.1126/science.1102896

7. DeHeer W.A. i in., US Patent 7,015,142; Mar. 21, 2006.

8. www.nanowerk.com/spotlight/spotid=25744.php#ixzz3EUaPKIR9.

9. www.pl.espacenet.com.

10. www.ipo.gov.pl.

11. www.head.com/tenis.

12. Huczko A. i in., Synteza spaleniowa materiałów nanostrukturalnych, Wydawnictwa Uniwersytetu Warszawskiego, Warszawa 2011.

Magdalena Kurcz **Nie tylko grafen…** .

1. Peng Q. i in., Nanotechnology, Science and Applications, 7, 2014, 1. https://doi.org/10.2147/NSA.S40324

2. Xu M. i in., Chem. Rev., 113, 2013, 3766. https://doi.org/10.1021/cr300263a

3. Lim Y. M. I in., Science, 327, 2010, 662. https://doi.org/10.1126/science.1184289

4. Liu M. i in., Nature, 474, 2011, 64. https://doi.org/10.1038/nature10067

5. Kim K. i in., Nature, 457, 2009, 706. https://doi.org/10.1038/nature07719

6. Zhu Y. W. i in., Science, 332, 2011, 1537. https://doi.org/10.1126/science.1200770

7. El-Kady M. F. i in., Science, 335, 2012, 6074. https://doi.org/10.1126/science.1216744

8. Yang X. i in., J. Mater. Chem., 21, 2011, 8096. https://doi.org/10.1039/c1jm10697j

9. Geim A., Nat. Mater., 6, 2007, 183. https://doi.org/10.1038/nmat1849

10. Deng M. i in., Sensor Actuators B: Chem., 158, 2011, 176. https://doi.org/10.1016/j.snb.2011.05.062

11. Xu M. S. i in., Small, 5, 2009, 2638. https://doi.org/10.1002/smll.200900976

12. Garaj S. i in., Nature, 467, 2010, 190. https://doi.org/10.1038/nature09379

13. Xu M. S. i in., Chin. Sci. Bull., 57, 2012, 3000. https://doi.org/10.1007/s11434-012-5128-9

14. Novoselov K.S. i in., Proc. Natl. Acad. Sci. USA, 102, 2005, 10451.

15. Ueno A. i in., Surf. Sci., 600, 2006, 3518. https://doi.org/10.1016/j.susc.2006.07.007

16. Kara A. i in., Surf. Sci. Rep., 67, 2012, 1. https://doi.org/10.1016/j.surfrep.2012.01.001

17. Naguib M. i in., Adv. Mater., 23, 2011, 4248. https://doi.org/10.1002/adma.201102306

18. Naguib M. i in., ACS Nano, 6, 2012, 1322. https://doi.org/10.1021/nn204153h

19. Amo-Ochoa P. i in., Chem. Commun., 46, 2010, 3262. https://doi.org/10.1039/b919647a

20. Abel M. i in., J. Am. Chem. Soc., 133, 2011, 1203. https://doi.org/10.1021/ja108628r

21. Golberg D. i in., ACS Nano, 4, 2010, 2979. https://doi.org/10.1021/nn1006495

22. Wilson J. A., Yoffe A. D., Adv. Phys., 73, 1969, 193. https://doi.org/10.1080/00018736900101307

23. Osada M., Sasaki, T., Adv. Mater., 24, 2012, 210. https://doi.org/10.1002/adma.201103241

24. Hozoi L. i in., Sci. Rep., 1, 2011, 65. https://doi.org/10.1038/srep00065

25. Zhang H. J. i in., Nat. Phys., 5, 2009, 438.

26. Tao H. i in., ACS Nano, 5, 2011, 7510. https://doi.org/10.1021/nn2024607

27. Takeda K., Shiraishi K., Phys. Rev. B, 50, 1994, 14916. https://doi.org/10.1103/PhysRevB.50.14916

28. Aufray B. i in., Appl. Phys. Lett., 96, 2010, 183102. https://doi.org/10.1063/1.3419932

29. Cahangirov S. i in., Phys. Rev. Lett., 102, 2009, 236804. https://doi.org/10.1103/PhysRevLett.102.236804

30. Lang M. R. i in., ACS Nano, 6, 2012, 295. https://doi.org/10.1021/nn204239d

31. Zhang H. B. i in., Adv. Mater., 24, 2012, 132.

32. Gamble F. R., Silbernagel B. G., J. Chem. Phys., 63, 1975, 2544. https://doi.org/10.1063/1.431645

33. Tang X. F. i in., Appl. Phys. Lett., 90, 2007, 012102. https://doi.org/10.1063/1.2425007

34. Iwasha Y., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s.35.

35. Kane B. E., Nature, 393, 1998, 133. https://doi.org/10.1038/30156

36. Gunawan O. i in., Phys. Rev. Lett., 97, 2006, 186404. https://doi.org/10.1103/PhysRevLett.97.186404

37. Yao W. i in., Phys. Rev. B, 77, 2008, 235406. https://doi.org/10.1103/PhysRevB.77.235406

38. Mak K. F. i in., Nat. Nanotechnol, 7, 2012, 494.

39. Liu C. C. i in., Phys. Rev. Lett., 107, 2011, 076802. https://doi.org/10.1103/PhysRevLett.107.136805

40. Houssa M. i in., Appl. Phys. Lett., 97, 2010, 112106. https://doi.org/10.1063/1.3489937

41. Min H. i in., Phys. Rev. B, 74, 2006, 165310. https://doi.org/10.1103/PhysRevB.74.165310

42. Ni Z. Y. i in., J. Nano Lett., 12, 2012, 113. https://doi.org/10.1021/nl203065e

43. Drummond N. D. i in., Phys. Rev. B, 85, 2012, 075423. https://doi.org/10.1103/PhysRevB.85.075423

44. Ezawa M., New J. Phys., 14, 2012, 033003. https://doi.org/10.1088/1367-2630/14/3/033003

45. Lin Y., Connell J. W., Nanoscale, 4, 2012, 6908. https://doi.org/10.1039/c2nr32201c

46. Wang Q. H. i in., Nat. Nanotechnol., 7, 2012, 699.

47. Tang Q., Zhou Z., Prog. Mat. Sci., 58, 2013, 1244. https://doi.org/10.1016/j.pmatsci.2013.04.003

48. Rao C. N. R. i in., Angew. Chem., Int. Ed., 50, 2013, 13162. https://doi.org/10.1002/anie.201301548

49. Rao C. N. R., Nag A., Eur. J. Inorg. Chem., 27, 2010, 4244. https://doi.org/10.1002/ejic.201000408

50. Lin Y. i in., J. Phys. Chem. C, 114, 2010, 17434. https://doi.org/10.1021/jp105454w

51. Nazarov A. S. i in., Chem. Asian. J., 7, 2012, 554. https://doi.org/10.1002/asia.201100710

52. Gordon R. A. i in., Phys. Rev. B, 65, 2002, 125407.

53. Zeng Z. i in., Angew. Chem., Int. Ed., 50, 2011, 11093.

54. Zeng Z. i in., Angew. Chem., Int. Ed., 51, 2012, 9052.

55. Eda G. i in., ACS Nano, 6, 2012, 7311. https://doi.org/10.1021/nn302422x

56. Zhou K. G. i in., Angew. Chem., Int. Ed., 50, 2011, 10839.

57. Corso M. i in., Science, 303, 2004, 217. https://doi.org/10.1126/science.1091979

58. Sutter P. i in., ACS Nano, 5, 2011, 7303. https://doi.org/10.1021/nn202141k

59. Joshi S. i in., Nano Lett., 12, 2012, 5821. https://doi.org/10.1021/nl303170m

60. Shi Y. i in., Nano Lett., 10, 2010, 4134. https://doi.org/10.1021/nl1023707

61. Song L. i in., Nano Lett., 10, 2010, 3209. https://doi.org/10.1021/nl1022139

62. Chatterjee S. i in., Chem. Mater., 23, 2011, 4414. https://doi.org/10.1021/cm201955v

63. Ismach A. i in., ACS Nano, 6, 2012, 6378. https://doi.org/10.1021/nn301940k

64. Lee Y. H. i in., Adv. Mater., 24, 2012, 2320.

65. Lalmi B. i in., Appl. Phys. Lett., 97, 2010, 223109. https://doi.org/10.1063/1.3524215

66. Vogt P. i in., Phys. Rev. Lett., 108, 2012, 155501. https://doi.org/10.1103/PhysRevLett.108.070404

67. Meng L. i in., Nano Lett., 13, 2013, 685. https://doi.org/10.1021/nl304347w

68. Li H. i in., Small, 8, 2012, 682. https://doi.org/10.1002/smll.201101958

69. Ferrari A.C., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s.118.

70. Nemes-Incze P. i in., Carbon, 46, 2008, 1435. https://doi.org/10.1016/j.carbon.2008.06.022

71. Gorbachev R. V. i in., Small, 7, 2011, 465. https://doi.org/10.1002/smll.201001628

72. Lee C. i in., ACS Nano, 4, 2010, 2695. https://doi.org/10.1021/nn1003937

73. Scheuschner N. i in., Phys. Stat. Solidi B, 12, 2012, 2644. https://doi.org/10.1002/pssb.201200389

74. Yamamoto M. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s.161.

75. Michael K. H., Verberck B., Phys. Rev. B., 83, 2009, 224301.

76. Michael K. H., Verberck B., Phys. Stat. Solidi B, 248, 2011, 2720. https://doi.org/10.1002/pssb.201100084

77. Song L. i in., Adv. Mater., 24, 2012, 4878.

78. Pacilé D. i in. Appl. Phys. Lett., 92, 2008, 133107. https://doi.org/10.1063/1.2903702

79. Han W. i in., Appl. Phys. Lett., 93, 2008, 223103. https://doi.org/10.1063/1.3041639

80. Coleman J. N. i in., Science, 331, 2011, 568.

81. Smith R. J. i in., Adv. Mater., 23, 2011, 3944.

82. Sainsbury T. i in., Chem. Eur. J., 18, 2012, 10808. https://doi.org/10.1002/chem.201201734

83. Nag A. i in. ACS Nano, 4, 2010, 1539. https://doi.org/10.1021/nn9018762

84. Yu J. i in., ACS Nano, 4, 2010, 414. https://doi.org/10.1021/nn901204c

85. Liu Z. i in., Nano Lett., 11, 2011, 2032. https://doi.org/10.1021/nl200464j

86. Gibb A. i in., Phys. Stat. Solidi B, 12, 2012, 2727.

87. Fujita D., Homma T., J. Vac. Sci. Technol. A, 6, 1988, 230.

88. Suzuki S. i in. J. Phys. D: Appl. Phys., 45, 2012, 385304. https://doi.org/10.1088/0022-3727/45/38/385304

89. Xu M. i in., Nanoscale, 3, 2011, 2854. https://doi.org/10.1039/c1nr10294j

90. Alem N. i in., Phys. Rev. B, 80, 2009, 155425. https://doi.org/10.1103/PhysRevB.80.155425

91. Jin C. i in., Phys. Rev. Lett., 102, 2009, 195505.

92. Meyer J. C. i in., Nano Lett., 9, 2009, 2683. https://doi.org/10.1021/nl9011497

93. Chen W. i in., J. Am. Chem. Soc., 132, 2010, 1699. https://doi.org/10.1021/ja908475v

94. Huang B. i in., Phys. Rev. Lett., 108, 2012, 206802. https://doi.org/10.1103/PhysRevLett.108.030502

95. Zhou Y. G. i in., J. Appl. Phys., 109, 2011, 084308. https://doi.org/10.1063/1.3569725

96. Liu R. F., Cheng C., Phys. Rev. B, 76, 2007, 014405. https://doi.org/10.1103/PhysRevC.76.054304

97. Zhou J. i in., Phys. Rev. B, 81, 2010, 085442. https://doi.org/10.1103/PhysRevE.81.026705

98. Ma Y. i in., Nanoscale, 3, 2011, 2301. https://doi.org/10.1039/c1nr10167f

99. Zhang Z. i in., J. Am. Chem. Soc., 133, 2011, 14831. https://doi.org/10.1021/ja206703x

100. Tang Q. i in., J. Phys. Chem. C, 115, 2011, 18531. https://doi.org/10.1021/jp2067205

101. Fedorov F. E. i in., Phys. Stat. Solidi B, 12, 2012, 2549. https://doi.org/10.1002/pssb.201200105

102. Dean C. R. i in., J. Nat. Nanotechnol., 5, 2010, 722.

103. Epping A. i in., Phys. Stat. Solidi B, 12, 2012, 2692. https://doi.org/10.1002/pssb.201300295

104. Hone J., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s.130.

105. Gao R. i in., J. Phys. Chem. C, 113, 2009, 15160. https://doi.org/10.1021/jp904246j

106. Watanabe K. i in., Nat. Photon., 3, 2009, 591. https://doi.org/10.1038/nphoton.2009.167

107. Zhu Y. i in., Nano Lett., 6, 2006, 2982. https://doi.org/10.1021/nl061594s

108. Feng P. X., Sajjad M., Mater. Lett., 89, 2012, 206. https://doi.org/10.1016/j.matlet.2012.08.053

109. Zhi C. i in., Adv. Mater., 21, 2009, 2889. https://doi.org/10.1002/adma.200900323

110. Khan U. i in., Nanoscale, 5, 2013, 581. https://doi.org/10.1039/C2NR33049K

111. Chen Z., Zou J., J. Mater. Chem., 21, 2011, 1191. https://doi.org/10.1039/C0JM02955F

112. Terrones M. i in., Nano Lett., 8, 2008, 1026. https://doi.org/10.1021/nl072713m

113. Song W. i in., Angew. Chem., Int. Ed., 51, 2012, 6498.

114. Taha-Tijerina J. i in., ACS Nano, 6, 2012, 1214. https://doi.org/10.1021/nn203862p

115. Dil H. i in., Science, 319, 2008, 1824. https://doi.org/10.1126/science.1154179

116. Ding Y. i in., J. Phys. Chem. C, 115, 2011, 13685. https://doi.org/10.1021/jp110235y

117. Widmer R. i in., Nanoscale, 2, 2010, 502. https://doi.org/10.1039/b9nr00431a

118. Natterer F. D. i in., Phys. Rev. Lett., 109, 2012, 066101. https://doi.org/10.1103/PhysRevLett.109.089901

119. Wang B., Bocquet M., J. Phys. Chem. Lett., 2, 2011, 2341. https://doi.org/10.1021/jz201047c

120. Wang L. i in., Catal. Sci. Technol., 1, 2011, 1119. https://doi.org/10.1039/c1cy00191d

121. Wang L. i in., RSC Adv., 2, 2012, 10689. https://doi.org/10.1039/c2ra21325g

122. Ali Ahmadi Peyghan i in., Superlattices and Microstructures, 59, 2013, 115. https://doi.org/10.1016/j.spmi.2013.04.005

123. Postma H. W. C., Nano Lett., 10, 2010, 420. https://doi.org/10.1021/nl9029237

124. Nelson T. i in., Nano Lett., 10, 2010, 3237. https://doi.org/10.1021/nl9035934

125. Krivanek O. L. i in., Nature, 464, 2010, 571. https://doi.org/10.1038/nature08879

126. Li J., Shenoy V. B., Appl. Phys. Lett., 98, 2011, 013105. https://doi.org/10.1063/1.3533804

127. Ci L. J. i in. Nat. Mater., 9, 2010, 430. https://doi.org/10.1038/nmat2711

128. Liu Y. i in., Nano Lett., 11, 2011, 3113. https://doi.org/10.1021/nl2011142

129. Sutter P. i in., Nano Lett., 12, 2012, 4869. https://doi.org/10.1021/nl302398m

130. Pakdel A. i in., J. Mater. Chem., 22, 2012, 4818. https://doi.org/10.1039/c2jm15109j

131. Lin T. i in., Small, 8, 2012, 1384. https://doi.org/10.1002/smll.201101927

132. Wang X. i in., Adv. Mater., 23, 2011, 4072.

133. Raidongia K. i in., Chem. Eur. J., 16, 2010, 149. https://doi.org/10.1002/chem.200902478

134. Zhao R. i in., J. Phys. Chem. C, 116, 2012, 21098. https://doi.org/10.1021/jp306660x

135. Fan X. i in., Nanoscale, 4, 2012, 2157. https://doi.org/10.1039/c2nr11728b

136. Quhe R. i in., NPG Asia Mater., 4, 2012, e6. https://doi.org/10.1038/am.2012.10

137. Kumar S. i in., Chem. Phys. Lett., 499, 2010, 152.

138. Cao T. i in., Phys. Rev. B, 84, 2011, 205447. https://doi.org/10.1103/PhysRevB.84.205447

139. Kumar N. i in., ChemSusChem, 4, 2011, 1662.

140. Wang S. i in., Angew. Chem., Int. Ed., 51, 2012, 4209.

141. Lei W. i in., Chem. Commun., 49, 2013, 352. https://doi.org/10.1039/C2CC36998B

142. http://www.bbc.com/news/technology-16034693.

143. Böker Th. i in., Phys. Rev. B, 64, 2001, 235305.

144. Klein A. i in., Phys. Rev. B, 64, 2001, 205416. https://doi.org/10.1103/PhysRevE.64.056110

145. Dolui K. i in., ACS Nano, 6, 2012, 4823. https://doi.org/10.1021/nn301505x

146. Mak K. F. i in., Phys. Rev. Lett., 105, 2010, 136805. https://doi.org/10.1103/PhysRevLett.105.136805

147. Splendiani A. i in., Nano Lett., 10, 2010, 1271. https://doi.org/10.1021/nl903868w

148. Korn T. i in., Appl. Phys. Lett., 99, 2011, 102109. https://doi.org/10.1063/1.3636402

149. Eda G. i in., Nano Lett., 11, 2011, 5111. https://doi.org/10.1021/nl201874w

150. Scheuschner N. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 107.

151. Ma Y. i in., Phys. Chem.. 13, 2011, 15546. https://doi.org/10.1039/c1cp21159e

152. Voß D. i in., Phys. Rev. B, 60, 1999, 14311. https://doi.org/10.1103/PhysRevB.60.14311

153. Mak K. F., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 34.

154. Castellanos-Gomez A., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 36.

155. Borzda T. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 43.

156. Zhan, Y. J. i in., Small, 8, 2012, 966. https://doi.org/10.1002/smll.201102654

157. Shi Y. i in., Nano Lett., 12, 2012, 2784. https://doi.org/10.1021/nl204562j

158. Liu K. K. i in., Nano Lett., 12, 2012, 1538. https://doi.org/10.1021/nl204202k

159. Castellanos-Gomez A. i in., Nano Lett., 12, 2012, 3187. https://doi.org/10.1021/nl301164v

160. Balendhran S. i in., Nanoscale, 4, 2012, 461. https://doi.org/10.1039/C1NR10803D

161. Wu Z. i in., Adv. Eng. Mater., 12, 2012, 534.

162. Ramakrishna Matte H. S. S. i in., Angew. Chem. Int. Ed., 49, 2010, 4059.

163. Koroteev V. O. i in., Phys. Stat. Solidi B, 11, 2011, 2740. https://doi.org/10.1002/pssb.201100123

164. Gatensby R., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 58.

165. O'Brian M. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 103.

166. He J. G. i in., Appl. Phys. Lett., 96, 2010, 082504. https://doi.org/10.1063/1.3318254

167. Andersen A. i in., J. Phys. Chem. C, 116, 2012, 1826. https://doi.org/10.1021/jp206555b

168. Ataca C., Ciraci S. J., Phys. Chem. C, 115, 2011, 13303. https://doi.org/10.1021/jp2000442

169. Scalise E. i in., Nano Res., 5, 2012, 43. https://doi.org/10.1007/s12274-011-0183-0

170. Liu Q. i in., J. Phys. Chem. C, 116, 2012, 21556. https://doi.org/10.1021/jp307124d

171. Nguyen C. T. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 102.

172. Todorova T. i in., J. Catal., 246, 2007, 109.

173. Merki D., Hu X., Energy Environ. Sci, 4, 2011, 3878. https://doi.org/10.1039/c1ee01970h

174. Li Y. G. i in., J. Am. Chem. Soc., 133, 2011, 7296. https://doi.org/10.1021/ja201269b

175. Radisavljevic B. i in., ACS Nano, 5, 2011, 9934. https://doi.org/10.1021/nn203715c

176. Wang H. i in., Nano Lett., 12, 2012, 4674. https://doi.org/10.1021/nl302015v

177. Radisavljevic B. i in., Nat. Nanotechnol., 6, 2011, 147. https://doi.org/10.1038/nnano.2010.279

178. Ghatak S. i in., ACS Nano, 5, 2011, 7707. https://doi.org/10.1021/nn202852j

179. Yin Z. i in., ACS Nano, 6, 2012, 74. https://doi.org/10.1021/nn2024557

180. Lee H. S. i in., Nano Lett., 12, 2012, 3695. https://doi.org/10.1021/nl301485q

181. Li H. i in., Small, 8, 2012, 63.

182. He Q. i in., Small, 8, 2012, 2994. https://doi.org/10.1002/smll.201201224

183. Wu S. i in., Small, 8, 2012, 2264. https://doi.org/10.1002/smll.201200044

184. Seo J. W. i in., Angew. Chem. Int. Ed., 46, 2007, 8828.

185. Xiao J. i in., Chem. Mater., 22, 2010, 4522. https://doi.org/10.1021/cm101254j

186. Ding S. i in., Chem. Eur. J., 17, 2011, 13142. https://doi.org/10.1002/chem.201102480

187. Chang K., Chen W., J. Mater. Chem., 21, 2011, 17175. https://doi.org/10.1039/c1jm12942b

188. Liang Y. i in., Adv. Mater., 23, 2011, 640. https://doi.org/10.1002/adma.201003560

189. Gourmelon E. i in., Sol. Energy Mater. Sol. Cells, 46, 1997, 115. https://doi.org/10.1016/S0927-0248(96)00096-7

190. Fortin E., Sears W. M., J. Phys. Chem. Solids, 43, 1982, 881. https://doi.org/10.1016/0022-3697(82)90037-3

191. Shanmugam M. i in., Appl. Phys. Lett., 100, 2012, 153901. https://doi.org/10.1063/1.3703602

192. Shanmugam M. i in., Nanoscale, 4, 2012, 7399. https://doi.org/10.1039/c2nr32394j

193. Ma Y. i in., J. Phys. Chem. C, 115, 2011, 20237. https://doi.org/10.1021/jp205799y

194. Liu B. i in., J. Phys. Chem. C, 114, 2010, 14251. https://doi.org/10.1021/jp104143e

195. Ma Y. i in., ACS Nano, 6, 2012, 1695. https://doi.org/10.1021/nn204667z

196. Zhou Y. i in., ACS Nano, 6, 2012, 9727. https://doi.org/10.1021/nn303198w

197. Sun Y. i in., Angew. Chem., Int. Ed., 51, 2012, 8727.

198. Ghaemi P. i in., Phys. Rev. Lett., 105, 2010, 166603. https://doi.org/10.1103/PhysRevLett.105.166603

199. Steinberg H. i in., Nano Lett., 10, 2010, 5032. https://doi.org/10.1021/nl1032183

200. Molenkamp L. W. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 30.

201. Ataca C. i in., J. Phys. Chem. C, 116, 2012, 8983. https://doi.org/10.1021/jp212558p

202. Kuc A. i in., Phys. Rev. B, 83, 2011, 245213. https://doi.org/10.1103/PhysRevB.83.245213

203. Zolyomi V. i in., XXVIIIth International Winterschool on Electronic Properties of Novel Materials, Kirchberg 2014, Książka streszczeń, s. 165.

204. Johari P., Shenoy V. B., ACS Nano, 6, 2012, 5449. https://doi.org/10.1021/nn301320r

205. Pereira V. M., Castro Neto A. H., Phys. Rev. Lett., 103, 2009, 046801. https://doi.org/10.1103/PhysRevLett.103.046801

206. Jäger-Waldau A. i in., Appl. Surf. Sci., 65-66, 1993, 465. https://doi.org/10.1016/0169-4332(93)90703-E

207. Regula M. i in., Thin Solid Films, 280, 1996, 67. https://doi.org/10.1016/0040-6090(95)08206-9

208. Lee K. i in., Adv. Mater., 23, 2011, 4178. https://doi.org/10.1002/adma.201101013

209. Zabinski J. S. i in., J. Mater. Sci., 29, 1994, 4834.

210. Hofmann W. K., J. Mater. Sci., 23, 1988, 3981. https://doi.org/10.1007/BF01106824

211. Mitzi D. B., Adv. Mater., 21, 2009, 3141. https://doi.org/10.1002/adma.200802027

212. Seo J. W. i in., Adv. Mater., 20, 2008, 4269.

213. Lefebvre I. i in., Phys. Rev. B, 58, 1998, 1896. https://doi.org/10.1103/PhysRevB.58.1896

214. Greenaway D. L., Nitsche R., J. Phys. Chem. Solids, 26, 1965, 1445. https://doi.org/10.1016/0022-3697(65)90043-0

215. Robertson J., J. Phys. C: Solid State Phys., 12, 1979, 4753. https://doi.org/10.1088/0022-3719/12/22/019

216. Lokhande C. D., J. Phys. D: Appl. Phys., 23, 1990, 1703. https://doi.org/10.1088/0022-3727/23/12/032

217. Schlaf R. i in., Surf. Sci., 385, 1997, 1. https://doi.org/10.1016/S0039-6028(97)00066-6

218. Cheng B. i in., J. Am. Chem. Soc., 126, 2004, 5972. https://doi.org/10.1021/ja0493244

219. Zhang Y. J. i in., Chem. Commun., 47, 2011, 5226. https://doi.org/10.1039/c0cc05528j

220. Vaughn D. D. i in., J. Am. Chem. Soc., 132, 2010, 15170. https://doi.org/10.1021/ja107520b

221. Li C. i in., ACS Nano, 6, 2012, 8868. https://doi.org/10.1021/nn303745e

222. Vaughn D. D. i in., ACS Nano, 5, 2011, 8852. https://doi.org/10.1021/nn203009v

223. Kim T. J. i in., J. Power Sources, 167, 2007, 529. https://doi.org/10.1016/j.jpowsour.2007.02.040

224. Du W. M. i in., CrystEngComm, 13, 2011, 2071. https://doi.org/10.1039/c0ce00596g

225. Zhai C. X. i in., Chem. Commun., 47, 2011, 1270. https://doi.org/10.1039/C0CC03023F

226. Ji L. W. i in., Energy Environ. Sci., 4, 2011, 2682. https://doi.org/10.1039/c0ee00699h

227. Johnson J. B. i in., Semicond. Sci. Technol., 14, 1999, 501. https://doi.org/10.1088/0268-1242/14/6/303

228. Hillhouse H. W., Beard M. C., Curr. Opin. Colloid Interface Sci., 14, 2009, 245. https://doi.org/10.1016/j.cocis.2009.05.002

229. Whittingham M. S., Chem. Rev., 104, 2004, 4271. https://doi.org/10.1021/cr020731c

230. Plucinski L. i in., Phys. Rev. B, 68, 2003, 125304.

231. Hu P. i in., ACS Nano, 6, 2012, 5988. https://doi.org/10.1021/nn300889c

232. Late D. J. i in., Adv. Mater., 24, 2012, 3549.

233. Late D. J. i in., Adv. Funct. Mater., 22, 2012, 1894.

234. Allakhverdiev K. R. i in., Laser Phys., 19, 2009, 1092. https://doi.org/10.1134/S1054660X09050375

235. Shi W. i in., Opt. Lett., 27, 2002, 1454. https://doi.org/10.1364/OL.27.001454

236. Ma R., Sasaki T., Adv. Mater., 22, 2010, 5082. https://doi.org/10.1002/adma.201001722

237. Sakai N. i in., J. Am. Chem. Soc., 126, 2004, 5851. https://doi.org/10.1021/ja0394582

238. Akio Etori, Convergence, 17, 2014, 2.

239. Osada M. i in., Phys. Rev. B, 73, 2006, 153301.

240. Omomo Y. i in., J. Am. Chem. Soc., 125, 2003, 3568. https://doi.org/10.1021/ja021364p

241. Fukuda K. i in., Inorg. Chem., 49, 2010, 4391. https://doi.org/10.1021/ic100176d

242. Fukuda K. i in., ACS Nano, 2, 2008, 1689. https://doi.org/10.1021/nn800184w

243. Oh J. M. i in., J. Mater. Chem., 19, 2009, 2553. https://doi.org/10.1039/b819094a

244. Sels B. i in., Nature, 400, 1999, 855. https://doi.org/10.1038/23674

245. Liu Z. i in., J. Am. Chem. Soc., 128, 2006, 4872. https://doi.org/10.1021/ja0584471

246. Hu L. i in., Chem. Asian. J., 5, 2010, 248. https://doi.org/10.1002/asia.200900475

247. Rui X. i in., Nanoscale, 5, 2013, 558. https://doi.org/10.1039/c3nr04462a

248. Tang Q. i in., J. Phys. Chem. C, 115, 2011, 11983. https://doi.org/10.1021/jp204174p

249. Du A. J. i in., Appl. Phys. Lett., 92, 2008, 163106. https://doi.org/10.1063/1.2916828

250. Durgun E. i in., Phys. Rev. B, 72, 2005, 075420. https://doi.org/10.1103/PhysRevB.72.075420

251. Wang S. Q., Phys. Chem. Chem. Phys., 13, 2011, 11929. https://doi.org/10.1039/c0cp02966a

252. Jose D. i in., J. Phys. Chem. C, 116, 2012, 24639. https://doi.org/10.1021/jp3084716

253. Sheka E. F., Int. J. Quantum Chem., 4, 2012, 612. https://doi.org/10.1002/qua.24081

254. Lebègue S., Eriksson O., Phys. Rev. B, 79, 2009, 115409. https://doi.org/10.1103/PhysRevB.79.115409

255. De Padova P. i in., Appl. Phys. Lett., 98, 2011, 081909. https://doi.org/10.1063/1.3557073

256. Car R. i in., Phys. Stat. Solidi B, 86, 1978, 471. https://doi.org/10.1002/pssb.2220860204

257. Ezawa M., Phys. Rev. Lett., 109, 2012, 055502. https://doi.org/10.1103/PhysRevLett.109.055502

258. O'Hare A. i in., Nano Lett., 12, 2012, 1045. https://doi.org/10.1021/nl204283q

259. Nakano H. i in., Angew. Chem., Int. Ed., 45, 2006, 6303.

260. Leandri C. i in., Surf. Sci., 574, 2005, L9. https://doi.org/10.1016/j.susc.2004.10.052

261. Chiappe D. i in., Adv. Mater., 24, 2012, 5088. https://doi.org/10.1002/adma.201202100

262. Feng B. i in., Nano Lett., 12, 2012, 3507. https://doi.org/10.1021/nl301047g

263. Fleurence A. i in., Phys. Rev. Lett., 108, 2012, 245501. https://doi.org/10.1103/PhysRevLett.108.245501

264. Kim U. i in., ACS Nano, 5, 2011, 2176. https://doi.org/10.1021/nn103385p

265. Okamoto H. i in., Chem. Eur. J., 17, 2011, 9864. https://doi.org/10.1002/chem.201100641

266. Zhang Y. i in., Nano Lett., 12, 2012, 1136 https://doi.org/10.1021/nl2021575

267. Okamoto H. i in., J. Am. Chem. Soc., 132, 2010, 2710. https://doi.org/10.1021/ja908827z

268. Lew Yan Voon L. C. i in., Appl. Phys. Lett., 97, 2010, 163114. https://doi.org/10.1063/1.3495786

269. Houssa M. i in., Appl. Phys. Lett., 98, 2011, 223107. https://doi.org/10.1063/1.3595682

270. Tao L. i in., Nat. Nanotechnol., 10, 2015, https://doi.org/10.1038/nnano.2014.325

271. Guzmán-Verri G. G., Lew Yan Voon L. C., J. Phys. Condens. Matter., 23, 2011, 145502. https://doi.org/10.1088/0953-8984/23/14/145502

272. Gao N. i in., Phys. Chem. Chem. Phys., 14, 2012, 257. https://doi.org/10.1039/C1CP22719J

273. Zhang P. i in., Phys. Lett. A, 376, 2012, 1230. https://doi.org/10.1016/j.physleta.2012.02.030

274. Wang X. Q. i in., Phys. Chem. Chem. Phys., 14, 2012, 3031. https://doi.org/10.1039/c2cp23385a

275. Morishita T. i in., Phys. Rev. B, 82, 2010, 045419.

276. Spencer M. J. S. i in., Nanoscale, 4, 2012, 2906. https://doi.org/10.1039/c2nr30100h

277. Lin X., Ni J., Phys. Rev. B, 86, 2012, 075440. https://doi.org/10.1103/PhysRevB.86.075440

278. Osborn T. H., Farajian A. A., J. Phys. Chem. C, 116, 2012, 22916. https://doi.org/10.1021/jp306889x

279. Hu W. i in., Phys. Chem. Chem. Phys., 15, 2013, 5753. https://doi.org/10.1039/c3cp00066d

280. Sahin H. i in., Phys. Rev. B, 80, 2009, 155453.

281. Bekaroglu E. i in., Phys. Rev. B, 81, 2009, 075433. https://doi.org/10.1103/PhysRevB.81.075433

282. Pan L. I in., Phys. Lett. A, 375, 2011, 614.

283. Claeyssens F. i in., J. Mater. Chem., 15, 2005, 139. https://doi.org/10.1039/B414111C

284. Freeman C. L. i in., Phys. Rev. Lett., 96, 2006, 066102. https://doi.org/10.1103/PhysRevLett.96.066102

285. Tusche C. i in., Phys. Rev. Lett., 99, 2007, 026102. https://doi.org/10.1103/PhysRevLett.99.026102

286. Topsakal M. i i., Phys. Rev. B, 80, 2009, 235119. https://doi.org/10.1103/PhysRevB.80.235119

287. Li H. i in., J. Phys. Chem. C, 114, 2010, 11390. https://doi.org/10.1021/jp1024558

288. Tang Q. i in., J. Phys. Chem. C, 115, 2011, 1724. https://doi.org/10.1021/jp109829c

289. Du A. J. i in., Chem. Phys. Lett., 469, 2009, 183. https://doi.org/10.1016/j.cplett.2008.12.080

290. Wu W. i in., ACS Appl. Mater. Interfaces, 3, 2011, 4787. https://doi.org/10.1021/am201271j

291. Zhang Y. G. i in., J. Phys. Chem. C, 116, 2012, 23130. https://doi.org/10.1021/jp3077062

292. Tu Z. C., J. Comput. Theory Nanosci., 7, 2010, 1182.

293. Schmidt T. M. i in., Phys. Rev. B, 81, 2010, 195413. https://doi.org/10.1103/PhysRevD.81.103002

294. Guo H. i in., J. Phys. Chem. C, 116, 2012, 11336. https://doi.org/10.1021/jp2125069

295. Tang Q. i in., ACS Appl. Mater. Interfaces, 2, 2010, 2442. https://doi.org/10.1021/am100467j

296. Chen Q. i in., J. Chem. Phys., 132, 2010, 204703. https://doi.org/10.1063/1.3442908

297. Popov I. A., Boldyrev A. I., J. Phys. Chem. C, 116, 2012, 3147. https://doi.org/10.1021/jp210956w

298. Yanagisawa H. i in., Surf. Sci., 600, 2006, 4072. https://doi.org/10.1016/j.susc.2006.01.124

299. Kouvetakis J. i in., J. Chem. Soc. Chem. Commun., 1986, 758.

300. Ribeiro F. J., Cohen M. L., Phys. Rev. B, 69, 2004, 212507. https://doi.org/10.1103/PhysRevB.69.212507

301. Ding Y. i in., J. Phys. Chem. C, 114, 2010, 12416. https://doi.org/10.1021/jp100298k

302. Lin X., Ni J., J. Appl. Phys., 111, 2012, 034309. https://doi.org/10.1063/1.3681899

303. Caretti I., Jimenez I., J. Appl. Phys., 110, 2011, 023511 https://doi.org/10.1063/1.3602996

304. Ding Y. i in., J. Phys. Chem. C, 113, 2009, 18468. https://doi.org/10.1021/jp903384m

305. Ding Y. i in., Nanoscale Res. Lett., 6, 2011, 190.

306. Zhang C., Alavi A., J. Chem. Phys., 127, 2007, 214704. https://doi.org/10.1063/1.2802338

307. Sha X. i in., J. Phys. Chem. C, 114, 2010, 3260. https://doi.org/10.1021/jp910356v

308. Yang Z., Ni J., Appl. Phys. Lett., 100, 2012, 183109. https://doi.org/10.1063/1.4711038

309. Yang Z., Ni J., Appl. Phys. Lett., 97, 2010, 253117. https://doi.org/10.1063/1.3532108

310. Kuzubov A. A. i in., Phys. Rev. B, 85, 2012, 195415. https://doi.org/10.1103/PhysRevB.85.195415

311. Niu P. i in., Adv. Funct. Mater., 22, 2012, 4763. https://doi.org/10.1002/adfm.201200922

312. Sun L. i in., J. Chem. Phys., 129, 2008, 174114. https://doi.org/10.1063/1.3006431

313. Lou P., Lee J. Y., J. Phys. Chem. C, 113, 2009, 12637. https://doi.org/10.1021/jp903155r

314. Gori P. i in., Appl. Phys. Lett., 100, 2012, 043110. https://doi.org/10.1063/1.3679175

315. Lou P., Lee J. Y., J. Phys. Chem. C, 113, 2009, 21213. https://doi.org/10.1021/jp906558y

316. Xu B. i in., Appl. Phys. Lett., 96, 2010, 143111. https://doi.org/10.1063/1.3379025

317. Lu T. i in., J. Mater. Chem., 22, 2012, 10062. https://doi.org/10.1039/c2jm30915g

318. Lou P., Lee J. Y., J. Phys. Chem. C, 114, 2010, 10947. https://doi.org/10.1021/jp911953z

319. Costa C. D., Morbec J. M., J. Phys. Condens. Matter., 23, 2011, 205504. https://doi.org/10.1088/0953-8984/23/20/205504

320. Wang X. Q., Wang J. T., Phys. Lett. A, 375, 2011, 2676. https://doi.org/10.1016/j.physleta.2011.05.065

321. He X. i in., Physica E, 42, 2010, 2451. https://doi.org/10.1016/j.physe.2010.06.010

322. Belanzoni P. i in., J. Phys. Chem. A, 110, 2006, 4582 https://doi.org/10.1021/jp056829n

323. Li Y. i in., J. Am. Chem. Soc., 113, 2011, 900.

324. Zhai H. J. i in., Nat. Mater., 2, 2003, 827. https://doi.org/10.1038/nmat1012

325. Zhang L. Z. i in., J. Phys. Chem. C, 116, 2012, 18202. https://doi.org/10.1021/jp303616d

326. Liu H. i in., Scientific Reports, 3, 2013, Article number: 3238.

327. Evans M. H. i in., Phys. Rev. B, 72, 2005, 045434. https://doi.org/10.1103/PhysRevA.72.022717

328. Cabria I. i in., Nanotechnology, 17, 2006, 778. https://doi.org/10.1088/0957-4484/17/3/027

329. Szwacki N. G. i in., Phys. Rev. Lett., 98, 2007, 166804.

330. Lau K. C., Pandey R., J. Phys. Chem. B, 112, 2008, 10217. https://doi.org/10.1021/jp8052357

331. Tang H., Ismail-Beigi S., Phys. Rev. B, 82, 2010, 115412. https://doi.org/10.1103/PhysRevB.82.115412

332. Özdogˇan C. i in., J. Phys. Chem. C, 114, 2010, 4362.

333. Penev E. S. i in., Nano Lett., 12, 2012, 2441. https://doi.org/10.1021/nl3004754

334. Yu X. i in., J. Phys. Chem. C, 116, 2012, 20075. https://doi.org/10.1021/jp305545z

335. Wu X. i in., ACS Nano, 6, 2012, 7443. https://doi.org/10.1021/nn302696v

336. Er S. i in., J. Phys. Chem. C, 113, 2009, 18962. https://doi.org/10.1021/jp9077079

337. Wu X. i in., Nano Lett., 9, 2009, 1577. https://doi.org/10.1021/nl803758s

338. Dai J. i in., Nanoscale, 4, 2012, 3032. https://doi.org/10.1039/c2nr12018f

339. An H. i in., Appl. Phys. Lett., 98, 2011, 173101. https://doi.org/10.1063/1.3583465

340. Barsoum M. W., Prog. Solid State Chem., 28, 2000, 201. https://doi.org/10.1016/S0079-6786(00)00006-6

341. Ivanovskii A. L., Enyashin A. N., Russian Chemical Reviews, 82, 2013, 735 https://doi.org/10.1070/RC2013v082n08ABEH004398

342. Naguib M. i in., Electrochem. Commun., 16, 2012, 61.

343. Naguib M. i in., Adv. Mater., 26, 2014, 992. https://doi.org/10.1002/adma.201304138

344. Tang Q. i in., J. Am.Chem. Soc., 134, 2012, 16909. https://doi.org/10.1021/ja3089907

345. Khazaei M. i in., Adv. Funct. Mater., 23, 2013, 2185.

346. Kurtoglu M. i in., MRS Commun., 2, 2012, 133. https://doi.org/10.1557/mrc.2012.25

347. Wang S. i in., Comput. Mat. Sci., 83, 2014, 290.

348. Shein I. R., Ivanovskii A. L., Comput. Mat. Sci., 65, 2012, 104. https://doi.org/10.1016/j.commatsci.2012.07.011

349. Mashtalir O. i in., Nat. Commun., 4, 2013, 1716. https://doi.org/10.1038/ncomms2664

350. Naguib M. i in., J. Am. Chem. Soc., 135, 2013, 15966. https://doi.org/10.1021/ja405735d

351. Lukatskaya M. R. i in., Science, 314, 2013, 1502. https://doi.org/10.1126/science.1241488

352. Xie X. i in., Chem. Commun., 49, 2013, 10112. https://doi.org/10.1039/c3cc44428g

353. Zhang X. i in., Angew. Chem., Int. Ed., 52, 2013, 4361.

354. Zhang X. i in., Angew. Chem., 125, 2013, 4457. https://doi.org/10.1002/ange.201302707

355. Tang Q. i in., J. Phys. Chem. C, 116, 2012, 4119. https://doi.org/10.1021/jp211779w

356. Li Y. i in., J. Am. Chem. Soc., 134, 2012, 6401.

357. Bauer T. i in., Angew. Chem., Int. Ed., 50, 2011, 7879.

358. Shi Z. i in., J. Am. Chem. Soc., 133, 2011, 6150. https://doi.org/10.1021/ja2010434

359. Kan E. i in., Nanoscale, 4, 2012, 5304. https://doi.org/10.1039/c2nr31074k

360. Spitler E. L., Dichtel W. R., Nat. Mater., 2, 2010, 672. https://doi.org/10.1038/nchem.695

361. Uribe-Romo F. J. i in., J. Am. Chem. Soc., 131, 2009, 4570. https://doi.org/10.1021/ja8096256

362. Kuhn P. i in., Angew. Chem., Int. Ed., 47, 2008, 3450. https://doi.org/10.1002/anie.200705710

363. Hunt J. R. i in., J. Am. Chem. Soc., 130, 2008, 11872. https://doi.org/10.1021/ja805064f

364. Uribe-Romo F. J. i in., J. Am. Chem. Soc., 133, 2011, 11478. https://doi.org/10.1021/ja204728y

365. Bieri M. i in., J. Am. Chem. Soc., 132, 2010, 16669. https://doi.org/10.1021/ja107947z

366. Zwaneveld N. A. A. i in., J. Am. Chem. Soc., 130, 2008, 6678. https://doi.org/10.1021/ja800906f

367. Clair S. i in., Chem. Commun., 47, 2011, 8028. https://doi.org/10.1039/c1cc12065d

368. Liu X.H. i in., Adv. Mater., 26, 2014, 6912. https://doi.org/10.1002/adma.201305317

369. Colson J. W. i in., Science, 332, 2011, 228. https://doi.org/10.1126/science.1202747

370. Zhou Y. i in., J. Mater. Chem., 22, 2012,16964. https://doi.org/10.1039/c2jm32321d

371. Bieri M. i in., Chem. Commun., 47, 2011, 10239. https://doi.org/10.1039/c1cc12490k

372. Gutzler R., Perepichka D. F., J. Am. Chem. Soc., 135, 2013, 16585. https://doi.org/10.1021/ja408355p

373. Gunjakar J. L. i in., J. Phys. Chem. C, 118, 2014, 3847. https://doi.org/10.1021/jp410626y

374. Huang X. i in., Adv. Mater., 26, 2014, 2185. https://doi.org/10.1002/adma.201304964

375. Choy J.-H., J. Phys. Chem. Solids, 65, 2004, 373. https://doi.org/10.1016/j.jpcs.2003.10.047

376. Ruiz-Hitzky E. i in., J. Mater. Chem., 20, 2010, 9306. https://doi.org/10.1039/c0jm00432d

377. Huang X.i in., Nat. Commun., 4, 2013, 1444.

378. Forticaux A.i in., ACS Nano, 7, 2013, 8224. https://doi.org/10.1021/nn4037078

379. Gunjakar J. L. i in., Sci. Rep., 3, 2013, 2080. https://doi.org/10.1038/srep02080

380. Jung T. S. i in., Bull. Korean Chem. Soc., 30, 2009, 449.

381. Choy J. H. i in., J. Phys.Chem. C, 102, 1998, 9191.

382. Hwang S. J. i in., J. Solid State Chem., 138, 1998, 66. https://doi.org/10.1006/jssc.1998.7755

383. Song M. S. i in., J. Phys. Chem. C, 114, 2010, 22134. https://doi.org/10.1021/jp108969s

384. Kim T. W. i in., J. Phys. Chem. C, 112, 2008, 14853. https://doi.org/10.1021/jp805488h

385. Gunjakar J. L. i in., J. Am. Chem. Soc., 133, 2011, 14998. https://doi.org/10.1021/ja203388r

386. Shin S. I. i in., Energy Environ. Sci., 6, 2013, 608. https://doi.org/10.1039/C2EE22739H

387. Saida T. i in., J. Phys. Chem. C, 114, 2010, 13390. https://doi.org/10.1021/jp103049x

388. Sumida K. i in., Chem. Rev., 112, 2012, 724. https://doi.org/10.1021/cr2003272

389. Smit B., Maesen T. L. M., Chem. Rev., 108, 2008, 4125. https://doi.org/10.1021/cr8002642

390. www.2dmaterials.org

Andrzej Huczko **Zakończenie .**

1. Grunwald A., Sci. Eng. Ethics, 11, 2005, 187. https://doi.org/10.1007/s11948-005-0041-0

2. Berne E.W., Sci. Eng. Ethics, 10, 2004, 627. https://doi.org/10.1007/s11948-004-0043-3

3. Oberdorster G. i in., Environ. Health Perspect., 113, 2005, 823. https://doi.org/10.1289/ehp.7339

4. Kroto H.W. i in., Nature, 318, 1985, 162. https://doi.org/10.1038/318162a0

5. Krätschmer W. i in., Chem. Phys. Lett., 170, 1990, 167. https://doi.org/10.1016/0009-2614(90)87109-5

6. Huczko A., Bystrzejewski M., Fulereny. 20 lat później, Wydawnictwa Uniwersytetu Warszawskiego, Warszawa 2007.

7. Cami J. i in., Science, 329, 2010, 1180. https://doi.org/10.1126/science.1192035

8. Foing B.H., Ehrefreund P., Nature, 369, 1994, 296. https://doi.org/10.1038/369296a0

9. Foing B.H., Ehrefreund P., Astron. Astrophys., 317, 1997, L59.

10. T.F. Heinz, 25th Intern. Winterschool on Electronic Properties of Novel Materials Molecular Nanostructures, February 26-March 5, 2011, Kirchberg, Austria, Książka streszczeń, s. 15.

11. Geim A.K., Nature Materials, 6, 2007, 183. https://doi.org/10.1038/nmat1849

12. Algara-Siller G. i in., G.I.T. Laboratory J., 15, 2011, 14.

13. Angus J.C., Hayman C.C., Science, 241, 1988, 913. https://doi.org/10.1126/science.241.4868.913

14. Haenen K. i in., Phys. Stat. Solidi RRL, 3, 2009, 208. https://doi.org/10.1002/pssr.200903155

15. Samant A.V. i in., MRS Bulletin, 35, 2010, 281.

16. Samant A.V. i in., Phys. Rev. B, 76, 2007, 235429.

17. Bradburn D., Materials Today, 15, 2012, 360. https://doi.org/10.1016/S1369-7021(12)70151-7

18. Seley R. et al., ACS Appl. Mater. Interfac., 3, 2011, 925. https://doi.org/10.1021/am101226w

19. Samant A.V. i in., Tribology Trans., 48, 2005, 24.

20. Liu T. i in., Small, 6, 2010, 1140.

21. Goldsmith R. i in., IEEE Intl. Microwave Symp. Dig., 2010, 1246.

22. Samant A.V., Materials Today, 15, 2012, 358 https://doi.org/10.1016/S1369-7021(12)70150-5

23. Goyal B. i in., Adv. Funct. Mater., 22, 2012, 1525.

24. Yu S. i in., Nano Lett., 12, 2012, 1603. https://doi.org/10.1021/nl204545q

25. Donaldson L., Materials Today, 15, 2012, 363. https://doi.org/10.1016/S1369-7021(12)70158-X

26. Tour J.M., Materials Today, 14, 2011, 454. https://doi.org/10.1016/S1369-7021(11)70197-3

27. Cano M. i in., Carbon, 52, 2013, 363. https://doi.org/10.1016/j.carbon.2012.09.046

28. Oliveira Jr. M.H. i in., Carbon, 52, 2013, 83. https://doi.org/10.1016/j.carbon.2012.09.008

29. Vlassiouk I. i in., Carbon, 54, 2013, 58. https://doi.org/10.1016/j.carbon.2012.11.003

30. Lei W. i in., Carbon, 56, 2013, 255. 2 https://doi.org/10.1016/j.carbon.2013.01.004

31. Krishnamurthy A. i in., Carbon, 56, 2013, 45. https://doi.org/10.1016/j.carbon.2012.12.060

32. Su Y.-W. i in., Materials Today, 15, 2012, 554. https://doi.org/10.1016/S1369-7021(13)70013-0

33. Donaldson N., Materials Today, 15, 2012, 530. https://doi.org/10.1016/S1369-7021(13)70008-7

34. Le Lay G., XXVIIth Int. Winterschool IWEPNM, 2-9 March 2013, Kirchberg, Austria, Książka streszczeń,

35. Liu M. i in., ACS Nano, 7, 2013, 10075. https://doi.org/10.1021/nn404177r

36. Panariti A. i in., Nanotechnology, Science and Applications, 5, 2012, 87.

37. Bradley D., Materials Today, 15, 2012, 230.

https://doi.org/10.1016/S1369-7021(12)70101-3

38. Donaldson K. i in., ACS Nano, 6, 2012, 736. https://doi.org/10.1021/nn204229f

39. Sanchez R. i in., Chem. Res. Toxicol., 25, 2012, 15. https://doi.org/10.1021/tx200339h

40. Mertens R., The Graphene Handbook, Amazon.co.uk, Ltd., Marston Gate, Wielka Brytania 2013.

41. www.nanonet.pl.

42. Stankovich S. i in., Carbon, 45, 2007, 1558. https://doi.org/10.1016/j.carbon.2007.02.034

43. Frąckowiak, E., Béguin, F., Carbon, 39, 2001, 937. https://doi.org/10.1016/S0008-6223(00)00183-4

44. Novoselov K.S. i in., Nature, 490, 2012, 192. https://doi.org/10.1038/nature11458

45. www.graphene.manchester.ac.uk.

46. www.masdar.ac.ae.

47. www.Graphene-Info.com.

48. www.ipo.gov.uk.

49. Nelson B.P., Materials Matter, 10, 2015, 1.