

## REFERENCES

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- Chiang**, C. K., Fincher, C. R., Park, Y. W., Heeger, A. J., Shirakawa, H., Louis, E. J., Gau, S. C. and MacDiarmid, A. G., Electrical conductivity in doped polyacetylene, *Phys. Rev. Lett.*, 39, 1098–1101, 1977.
- Michaelson**, H. B., The work function of the elements and its periodicity, *J. Appl. Phys.*, 48, 4729–4733, 1977.
- Sze**, S. M. and Wiley, J., *Physics of semiconductor devices*, New York, 2nd ed., ISBN 0-471-05661-8, 1981.
- Ebisawa**, F., Kurokawa, T. and Nara, S., Electrical properties of polyacetylene/polysiloxane interface, *J. Appl. Phys.*, 54, 32553–32259, 1983.
- Shur**, M. and Hack, M., Physics of amorphous silicon based alloy field-effect transistors, *J. Appl. Phys.*, 55, 38313–842, 1984.
- Waldrop**, J. R., Electrical properties of ideal metal contacts to GaAs: Schottky-barrier height, *J. Vac. Sci. Technol. B.*, 2, 4454–4448, 1984.
- Tsumura**, A., Koezuka H. and Ando, T., Macromolecular electronic device: Field-effect transistor with a polythiophene thin film, *Appl. Phys. Lett.*, 49, 1210–1212, 1986.
- Cox**, P. A., *The electronic structure and chemistry of solids*, Oxford Science Publications Walton Street, OX2 6DP, 1987.
- Assadi**, A., Sevensson, C., Willander, M. and Inganas, O., Field-effect mobility of poly(3-hexylthiophene), *Appl. Phys. Lett.*, 53, 195–197, 1988.
- Horowitz**, G. and Delannoy, P., An analytical model for short-channel organic thin-film transistors, *J. Appl. Phys.*, 70, 469–475, 1991.
- Bao**, Z., Dodabalapur, A. and Lovinger, A. J., Soluble and processable regioregular poly(3-hexylthiophene) for thin film field-effect transistor applications with high mobility, *Appl. Phys. Lett.*, 69, 4108–4110, 1996.
- Brown**, A. R., Jarrett, C. P., DeLeeuw, D. M. and Matters, M., Field-effect transistors made from solution-processed organic semiconductors, *Syn. Metals*, 88, 37–55, 1997.
- Garnier**, F., Scope and limits of organic-based thin-film transistors, *Phil. Trans.*, 355, 815–827, 1997.

- Sirringhaus, H.**, Friend, R. H., Li, X. C., Moratti, S. C., Holmes, A. B. and Feeder, N., Bis (dithienothiophene) organic field-effect transistors with a high ON/OFF ratio, *Appl. Phys. Lett.*, 71, 3871–3873, 1997.
- McCullough, R. D.**, The chemistry of conducting polythiophenes, *Adv. Mater.*, 10, 93–116, 1998.
- Sirringhaus, H.**, Tessler, N. and Friend, R. H., Integrated optoelectronic devices based on conjugated polymers, *Science*, 280, 1741–1744, 1998.
- Trznadel, M.**, Pron, A., Zagorska, M., Chrzaszcz, R. and Pielichowski, J., Effect of molecular weight on spectroscopic and spectroelectrochemical properties of regioregular poly(3-hexylthiophene), *Macromolecules*, 31, 5051–5058, 1998.
- McGehee, M.**, Twenty Years of Conducting Polymers From Fundamental Science to Applications, *Advances in Synthetic Metals*, 1999.
- Sirringhaus, H.**, Brown, P. J., Friend, R. H., Nielsen, M. M., Bechgaard, K., Langeveld-Voss, B. M. W., Spiering, A. J. H., Janssen, R. A. J., Meijer, E. W., Herwig, P. and de Leeuw, D. M., Two-dimensional charge transport in self-organized, high-mobility conjugated polymers, *Nature*, 401, 685, 1999.
- Cantatore, E.**, Organic materials: A new chance for electronics, *Proc. of the SAFE/IEEE workshop*, 27, 27, 2000.
- Gelinck, G. H.**, Geuns, T. C. T. and Leeuw, D. M., High-performance all-polymer integrated circuits, *Appl. Phys. Lett.*, 77, 1487–1489, 2000.
- Streetman, B. G.** and Banerjee, S., *Solid state electronic devices*, Prentice Hall, Upper Saddle River, NJ, 2000.
- Brabec, C. J.**, Sariciftci, N. S. and Hummelen, J. C., Plastic Solar Cells, *Adv. Funct. Mater.*, 11, 15–26, 2001.
- Deen, M. J.**, Marinov, O., Yu, J., Holdcroft, S. and Woods, W., Low-frequency noise in polymer transistors, *IEEE Trans. Electron Devices*, 48, 1688–1694, 2001.
- Dimitrakopoulos, C. D.** and Mascaró, D. J., Organic thin-film transistors: A review of recent advances, *IBM J. Res. Dev.*, 45, 11–27, 2001.
- Kudo, K.**, Iizuka, M., Kuniyoshi, S. and Tanaka, K., Fabrication of new type field effect transistors using charge transfer complex layers, *Electrical Engineering in Japan*, 134, 10–16, 2001.
- Loewe, R. S.**, Ewbank, P. C., Liu, J., Zhai, L., McCullough, R. D. and Richard, D., Regioregular, head-to-tail coupled poly(3-alkylthiophenes) made easy by the GRIM method: Investigation of the reaction and the origin of regioselectivity, *Macromolecules*, 34, 4324–4333, 2001.

- Christos**, D. D. and Patrick, R. L. M., Organic thin film transistors for large area electronics *Adv. Mater.*, 14, 99–117, 2002.
- Dimitrakopoulos**, C. D. and Malenfant, P. R. L., Organic thin film transistors for large area electronics, *Adv. Mater.*, 14, 99–117, 2002.
- Fuhrer**, M. S., Kim, B. M., Durkop, T. and Brintlinger, T., High-mobility nanotube transistor memory, *Nano Lett.*, 2, 755–759, 2002.
- Klauk**, H., Halik, M., Zschieschang, U., Eder, F., Schmid, G. and Dehm, C., Flexible organic complementary circuits, *Appl. Phys. Lett.*, 82, 4175–4162, 2002.
- Lei**, H., Francis, L. F., Gerberich, W. W. and Scriven, L. E., Stress development in drying coatings after solidification, *AI. Ch. E Journal*, 48, 437–451, 2002.
- Megelski**, S., Stephens, J. S., Chase, D. B., and Rabolt J. F., Micro- and Nano-structured surface morphology on electrospun polymer fibers, *Macromolecules*, 35, 8456–8466, 2002.
- Pron**, A. and Rannou, P., Processible conjugated polymers: from organic semiconductors to organic metals and superconductors, *Prog. Polym. Sci.*, 27, 135–190, 2002.
- Cui**, T., Liang, G. and Varahramyan, K., An organic poly(3,4-ethylenedioxythiophene) field-effect transistor fabricated by spin coating and reactive ion etching, *IEEE Trans. Electron Devices*, 50, 1419–1422, 2003.
- Kagan**, C. R. and Andry, P., *Thin film transistors*, 1st ed. Boca Raton, FL, USA: CRC Press, 2003.
- Kelley**, T. W., Boardman, L. D., Dunbar, T. D., Muyres, D. V., Pellerite, M. J. and Smith, T. P., High-performance OTFTs using surface-modified alumina dielectrics, *J. Phy. Chem. B*, 107, 5877–5881, 2003.
- Kiriy**, N., Jahne, E., Adler, H. J., Schneider, M., Kiriy, A., Gorodyska, G., Minko, S., Jehnichen, D., Simon, P., Fokin, A. A. and Stamm, M., One-dimensional aggregation of regioregular polyalkylthiophenes, *Nano Letters*, 3, 707–712, 2003.
- Kline**, R. J., McGehee, M. D., Kadnikova, E. N., Liu, J. and Fréche, J. M. J., Controlling the field-effect mobility of regioregular polythiophene by changing the molecular weight, *Adv. Mater.*, 15, 1519–1522, 2003.
- Majewski**, L. A., Grell, M., Ogier, S. D. and Veres, J., A novel gate insulator for flexible electronics, *Org. Electron.*, 4, 27–32, 2003.
- Merlo**, J. A. and Frisbie, C. D., Field effect conductance of conducting polymer nanofibers, *J. Polym. Sci. Part B: Polym. Phys.*, 41, 2674–2680, 2003.

- Rikitake**, K., Tanimura, D., Takashima, W. and Kaneto, K., Investigation of depletion layer at interface of poly(3-hexylthiophene) and aluminum, *Jpn. J. Appl. Phys.*, 42, 5561–5562, 2003.
- Snow**, E. S., Novak, J. P., Campbell, P. M. and Park, D., Random networks of carbon nanotubes as an electronic material, *Appl. Phys. Lett.*, 82, 2145–2147, 2003.
- Wang**, G., Swensen, J., Moses, D. and Heeger, A. J., Increased mobility from regioregular poly(3-hexylthiophene) field-effect transistors, *J. Appl. Phys.*, 93, 6137–6141, 2003.
- Zschieschang**, U., Klauk, H., Halik, M., Schmid, G. and Dehm, C., Flexible organic circuits with printed gate electrodes, *Adv. Mater.*, 15, 1147–1150, 2003.
- Deen**, M. J., Kazemeini, M. H., Haddara, Y. M., Yu, J., Vamvounis, G., Holdcroft, S. and Woods, W., Electrical characterization of polymer based field-effect transistors fabricated by spin-coating poly(3-alkylthiophene)s, *IEEE Trans. Electron. Dev.*, 50, 1892–1901, 2004.
- Hamadani**, B.H. and Natelson, D., Temperature-dependent contact resistances in high-quality polymer field-effect transistors, *Appl. Phys. Lett.*, 84, 443–445, 2004.
- Li**, Y. and Li, D., Experimental studies on relationships between the electron work function, adhesion, and friction for 3d transition metals, *Appl. Phys.*, 95, 7961–7965, 2004.
- Ling**, M. M. and Bao, Z., Thin film deposition, patterning, and printing in organic thin film transistors, *Chem. Mater.*, 16, 4824–4880, 2004.
- Merlo**, J. A. and Frisbie, C. D., Field effect transport and trapping in regioregular polythiophene nanofibers, *J. Phys. Chem. B*, 108, 19169–19179, 2004.
- Newman**, C. R., Frisbie, C. D., Filho, D. A. S., Brédas, J. L., Ewbank, P. C. and Mann, K. R., Introduction to organic thin film transistors and design of n-channel organic semiconductors, *Chem. Mater.*, 16, 4436–4451, 2004.
- Novoselov**, K. S., Geim, A. K., Morozov, S. V., Jiang, D., Zhang, Y., Dubonos, S. V., Grigorieva, I. V. and Firsov, A. A., Electric field effect in atomically thin carbon films, *Science*, 306, 666–669, 2004.
- Reese**, C., Roberts, M., Ling, M. M. and Bao, Z., Organic thin film transistors, *Mater. Today*, 7, 20–27, 2004.
- Sundar**, V. C., Zaumseil, J., Podzorov, V., Menard, E., Willett, R. L., Someya, T., Gershenson, E. M. and Rogers, J. A., Elastomeric transistor stamps: reversible probing of charge transport in organic crystals, *Science*, 303, 1644–1646, 2004.

- Saragi**, T. P. I., Pudzich, R., Fuhrmann, T. and Salbeck, J., Organic phototransistors based on intramolecular charge transfer in a bifunctional spiro compound, *Appl. Phys. Lett.*, 84, 2334–2336, 2004.
- Veres**, J., Ogier, S. and Lloyd, G., Gate insulators in organic field-effect transistors, *Chem. Mater.*, 16, 4543–4555, 2004.
- Yokoyama**, A., Miyakoshi, R. and Yokozawa, T., Chain-growth polymerization for poly(3-hexylthiophene) with a defined molecular weight and a low polydispersity, *Macromolecules*, 37, 1169–1171, 2004.
- Zen**, A., Pflaum, J., Hirschmann, S., Zhuang, W., Jaiser, F., Asawapirom, U. J., Rabe, P., Scherf, U., Neher, D., Effect of molecular weight and annealing of poly(3-hexylthiophene)s on the performance of organic field-effect transistors, *Adv. Funct. Mater.*, 14, 757–764, 2004.
- Abe**, Y., Hasegawa, T., Takahashi, Y., Yamada, T. and Tokura, Y., Control of threshold voltage in pentacene thin-film transistors using carrier doping at the charge-transfer interface with organic acceptors, *Appl. Phys. Lett.*, 87, 153506, 2005.
- Babel**, A., Li, D., Xia, Y. and Jenekhe, S. A., Electrospun nanofibers of blends of conjugated polymers: morphology, optical properties, and field-effect transistors, *Macromolecules*, 38, 4705–4711, 2005.
- Bo**, X. Z., Lee, C. Y., Strano, M. S., Goldfinger, M., Nuckolls, C. and Blanchet, G. B., Carbon nanotubes-semiconductor networks for organic electronics: The pickup stick transistor, *Appl. Phys. Lett.*, 86, 182102, 2005.
- Coehoorn**, R., Pasveer, W. F., Bobbert, P. A. and Michels, M. A. J., Charge-carrier concentration dependence of the hopping mobility in organic materials with Gaussian disorder, *Physical Review B: Condensed Matter and Materials Physics*, 72, 155206, 2005.
- Facchetti**, A., Yoon, M. H. and Marks, T. J., Gate dielectrics for organic field-effect transistors: new opportunities for organic electronics, *Adv. Mater.*, 17, 1705–1725, 2005.
- Gupta**, R. K. and Singh, R. A., Junction properties of schottky diode based on composite organic semiconductors, *J. Mater. Sci. Mater. Electron.*, 16, 253, 2005.
- Iovu**, M. C., Jeffries-El, M., Sheina, E. E., Cooper, J. R. and McCullough, R. D., Regioregular poly(3-alkylthiophene) conducting block copolymers, *Polymer*, 46, 8582–8586, 2005.

- Jeffries-El**, M., Sauv e, G. and McCullough, R. D., Facile synthesis of end-functionalized regioregular poly(3-alkylthiophene)s via modified Grignard metathesis reaction, *Macromolecules*, 38, 10346–10352, 2005.
- Kline**, R. J., McGehee, M. D., Kadikova, E. N., Liu, J., Frechet, J. M. J. and Toney, M. F., Dependence of regioregular poly(3-hexylthiophene) film morphology and field-effect mobility on molecular weight, *Macromolecules*, 38, 3312–3319, 2005.
- Koch**, N., Duhm, S., Rabe, J. P., Vollmer, A. and Johnson, R. L., Optimized hole injection with strong electron acceptors at organic-metal interfaces, *Phys. Rev. Lett.*, 95, 237601, 2005.
- Kuo**, C. C., High performance small-molecule organic thin film transistors, The Pennsylvania State University, PhD Thesis, 2005.
- Saragi**, T. P. I., Fuhrmann-Lieker, T. and Salbeck, J., High ON/OFF ratio and stability of amorphous organic field-effect transistors based on spiro-linked compounds, *Synth. Metals*, 148, 267–270, 2005.
- Sirringhaus**, H., Device physics of solution-processed organic field-effect transistors, *Adv. Mater.*, 17, 2411–2425, 2005.
- Sun**, Y., Liu, Y. and Zhu, D., Advances in organic field-effect transistors, *J. Mater. Chem.*, 15, 53–65, 2005.
- Xue**, F., Su, Y. and Varahramyan, K., Modified PEDOT-PSS conducting polymer as S/D electrodes for device performance enhancement of P3HT TFTs, *IEEE Elec. Dev. Lett.*, 52, 1982–1987, 2005.
- Zhang**, Y., Tan, Y. W., Stormer, H. L. and Kim, P., Experimental observation of the Quantum Hall Effect and Berry’s phase in graphene, *Nature*, 438, 201–204, 2005.
- Berger**, C., Song, Z., Li, X., Wu, X., Brown, N., Naud, C., Mayou, D., Li, T., Hass, J., Marchenkov, A. N., Conrad, E. H., First, P. N., Heer W. A. D., Electronic confinement and coherence in patterned epitaxial Graphene, *Science*, 312, 1191–1196, 2006.
- Bo**, X. Z., Tassi, N. G., Lee, C. Y., Strano, M. S., Nuckolls, C. and Blanchet, G. B., Pentacene-carbon nanotubes: Semiconducting assemblies for thin-film transistor applications, *Appl. Phys. Lett.*, 87, 203510–203511, 2006.
- Cho**, S., Lee, K., Yuen, J., Wang, G., Moses, D., Heeger, A. J., Surin, M., Lazzaroni, R. J., Thermal annealing-induced enhancement of the field-effect mobility of regioregular poly(3-hexylthiophene) films, *Appl. Phys.*, 100, 114503–114508, 2006.

- Dodabalapur, A.**, Organic and polymer transistors for electronics, *Mater. Today*, 9, 24–30, 2006.
- Kozelj, M.**, International conference nuclear energy for new Europe 2006 Portoroz, Slovenia, 18–21, 2006.
- Lim, E.**, Jung, B. J., Shim, H. K., Taguchi, T., Noda, B., Kambayashi, T., Mori, T., Ishikawa, K., Takezoe, H. and Do, L. M., Nanoscale thin-film morphologies and field-effect transistor behavior of oligothiophene derivatives, *Org. Electron.*, 7, 121–131, 2006.
- Majewski, A. L.**, Kingsley, J. W., Balocco, C. and Song, A. M., Influence of processing conditions on the stability of poly(3-hexylthiophene)-based field-effect transistors, *Appl. Phys. Lett.*, 88, 222108–222110, 2006.
- McDowell, M.**, Hill, I. G., McDermott, J. E., Bernasek, S. L. and Schwartz, J., Improved organic thin-film transistor performance using novel self-assembled monolayers, *Appl. Phys. Lett.*, 88, 073505–073507, 2006.
- Singh, T. B.** and Sariciftci, N. S., Progress in plastic electronics devices, *Annu. Rev. Mater. Res.*, 36, 199–230, 2006.
- Singh, V.**, Yano, M., Takashima, W. and Kaneto, K., Study of gate induced channel in organic field effect transistors using poly (3-hexylthiophene) films, *Jpn. J. Appl. Phys.*, 45, 534, 2006.
- Stankovich, S.**, Dikin, D. A., Dommett, G. H. B., Kohlhaas, K. M., Zimney, E. J., Stach, E. A., Piner, R. D., Nguyen, S. T., Ruoff, R. S., Graphene-based composite materials, *Nature*, 442, 282–286, 2006.
- Ando, S.**, Kumaki, D., Nishida, J., Tada, H., Inoue, Y., Tokito, S., Yamashita, Y., Synthesis, physical properties and field-effect transistors of novel Thiazolothiazole/Phenylene co-oligomers, *J. Mater. Chem.*, 17, 553–558, 2007.
- Bai, H.** and Shi, G., Gas sensors based on conducting polymers, *Sensors*, 7, 267–307, 2007.
- Berggren, M.**, Nilsson, D. and Robinson, N. D., Organic materials for printed electronics, *Nat. Mater.*, 6, 3–5, 2007.
- Chen, Y.** and Shih, I., Fabrication of vertical channel top contact organic thin film transistors, *Org. Electron.*, 8, 655–661, 2007.
- DeLongchamp, D. M.**, Kline, R. J., Lin, E. K., Fischer, D. A., Richter, L. J., Lucas, L. A., Heeney, M., McCulloch, I. and Northrup, J. E., High carrier mobility polythiophene thin films: structure determination by experiment and theory, *Adv. Mater.*, 19, 833–837, 2007.

- Hamadani**, B. H., Electronic charge injection and transport in organic field-effect transistors, Rice University, Ph.D Thesis, 2007.
- Sainova**, D., Janietz, S., Asawapirom, U., Romaner, L., Zojer, E., Koch, N. and Vollmer, A., Improving the stability of polymer FETs by introducing fixed acceptor units into the main chain: application to poly(alkylthiophenes), *Chemistry of Materials*, 19, 1472–1481, 2007.
- Urien**, M., Wantz, G., Cloutet, Hirsch, E. L., Tardy, P., Vignau, L., Cramail, H. and Parneix, J. P., Field-effect transistors based on poly (3-hexylthiophene): Effect of impurities, *Org. Electron.*, 8, 727–734, 2007.
- Watcharotone**, S., Dikin, D. A., Stankovich, S., Piner, R., Jung, I., Dommett, G. H. B. Evmenenko, G., Wu, S. E., Chen, S. F., Liu, C. P., Nguyen, S. T., Ruoff, R. S., Graphene-Silica composite thin films as transparent conductors, *Nano Lett.*, 7, 1888–1892, 2007.
- Balandin**, A. A., Ghosh, S., Bao, W., Calizo, I., Teweldebrhan, D., Miao, F. and Lau, C. N., Superior thermal conductivity of single-layer graphene, *Nano Lett.*, 8, 902–907, 2008.
- Bolotin**, K. I., Sikes, K. J., Jiang, Z., Kilma, M., Fudenberg, G., Hone, J., Kim, P. and Stormer, H. L., Ultrahigh electron mobility in suspended graphene, *Solid State Commun.*, 146, 351, 2008.
- Briseno**, A. L., Mannsfeld, S. C. B., Jenekhe, S. A., Bao, Z. and Xia, Y., Introducing organic nanowire transistors, *Materials Today*, 11, 38–47, 2008.
- Komino**, T., Tajima, H. and Matsuda, M., A relationship between molecular orientation and current-voltage characteristics in poly(3-hexylthiophen) thin film, *Chem. Lett.*, 37, 690–691 2008.
- Lee**, C., Wei, X. D., Kysar, J. W. and Hone, J., Measurement of the Elastic Properties and Intrinsic Strength of Monolayer Graphene, *Science* 321, 385–388, 2008.
- Li**, D., Muller, M. B., Gilje, S., Kaner, R. B. and Wallace, G. G., Processable aqueous dispersions of graphene nanosheets, *Nat. Nanotechnol.*, 3, 101–105, 2008.
- Li**, L., Lu, G. and Yang, X., Improving performance of polymer photovoltaic devices using an annealing-free approach via construction of ordered aggregates in solution, *J. Mater. Chem.*, 18, 1984–1990, 2008.
- Li**, L., Tang, Q., Li, H., Hu, W., Yang, X., Shuai, Z., Liu, Y. and Zhu, D., Organic thin-film transistors of phthalocyanines, *Pure Appl. Chem.*, 80, 2231–2240, 2008.
- Ma**, L., Lee, W. H., Park, Y. D., Kim, J. S., Lee, H. S. and Cho, K., Interface engineering in organic transistors, *Appl. Phys. Lett.*, 92, 063310–063312, 2008.

- Matsumoto**, F., Moriwaki, K., Takao, Y., Ohno, T., Synthesis of thienyl analogues of PCBM and investigation of morphology of mixtures in P3HT, *J. Org. Chem.*, 4, 33, 2008.
- Nair**, R. R., Blake, P., Grigorenko, A. N., Novoselov, K. S., Booth, T. J., Stauber, T. I., Peres, N. M. R. and Geim, A. K., Fine structure constant defines visual transparency of graphene, *Science*, 320, 1308, 2008.
- Polymer Vision**, 'Readius' Flexible Display Using OFET Backplanes, 2008, <http://www.phonesreview.co.uk/2008/02/04/readius-e-ink-phone-from-polymer-vision-coming-mid-2008-in-italy/>.
- Ramanathan**, T., Abdala, A. A., Stankovich, S., Dikin, D. A., Alonso, M. H. and Piner, R. D., Functionalized graphene sheets for polymer nanocomposites, *Nat. Nanotechnol.*, 3, 327–331 2008.
- Scavia**, G., Porzio, W., Destri, S., Barba, L., Arrighetti, G., Milita, S., Fumagalli, L., Natali, D. and Sampietro, M., Effect of the silanization and annealing on the morphology of thin poly (3-hexylthiophene)(P3HT) layer on silicon oxide, *Surface Science*, 602, 3106–3115, 2008.
- Singh**, A. K., Prakash, R., Dwivedi, A. D. D., Chakrabarti, P., Electronic properties and junction behaviour of Polyanthranilic Acid/Metal contacts, *IEEE Elec. Dev. Lett.*, 29, 571–574, 2008.
- Stoller**, M. D., Park, S., Zhu, Y., An, J. and Ruoff, R. S., Graphene-based ultracapacitors, *Nano. Lett.*, 8, 3498–3502, 2008.
- Yip**, H., Hau, S.K., Baek, N. S., Ma, H., Jen and A. K. Y., Polymer solar cells that use self-assembled-monolayer-modified ZnO/Metals as cathodes, *Adv. Mater.* 20, 2376–2382, 2008.
- Bronstein**, H. A. and Luscombe, C. K., Externally initiated regioregular P3HT with controlled molecular weight and narrow polydispersity, *J. Am. Chem. Soc.*, 131, 12894–12895, 2009.
- Caboni**, A., Orgiu, E., Barbaro, M. and Bonfiglio, A., Flexible organic thin-film transistors for pH monitoring, *IEEE Sens. Journal*, 9, 1963–1970, 2009.
- Camargo**, P. H. C., Satyanarayana, K. G. and Wypych, F., Nanocomposites: synthesis, structure, properties and new application opportunities, *Mater. Research.*, 12, 1–39, 2009.
- Chen**, W. C., *Electronic and optoelectronic polymers*, National Taiwan University, 2009.
- Fu**, Y., Lin, C. and Tsai, F.Y., A biomimetic electrocatalytic system for the atom-economical chemoselective synthesis of secondary amines, *Org. Electron.* 10, 883–886, 2009.

- Geim**, A. K., Graphene: Status and Prospects, *Science* 324, 1530–1534, 2009.
- Jung**, K. D., Kim, Y. C., Park, B. G., Shin, H. and Lee, J. D., Modeling and parameter extraction for the series resistance in thin-film transistor, *IEEE Trans. Electron Devices.*, 56, 431–440, 2009.
- Lee**, S. W., Lee, H. J., Choi, J. H., Koh, W. G., Myoung, J. M., Hur, J. H., Park, J. J., Cho, J. H. and Jeong, U. Periodic array of polyelectrolyte-gated organic transistors from electrospun poly(3-hexylthiophene) nanofibers, *Nano Lett.*, 10, 347–351, 2009.
- Lee**, W. H., Wang, C. C. and Ho, J. C., Influence of nano-composite gate dielectrics on OTFT characteristics, *Thin Solid Films*, 517, 5305–5310, 2009.
- Lee**, Y. R., Raghu, A. V., Jeong, H. M. and Kim, B. K., Properties of waterborne polyurethane/functionalized graphene sheet nanocomposites prepared by an in situ method, *Chem. Phys.*, 210, 1247–1254, 2009.
- Li**, X., Cai, W., An, J., Kim, S., Nah, J., Yang, D., Piner, R., Velamakanni, A., Jung, I., Tutuc, E., Banerjee, S. K., Colombo, L., Ruoff, R. S., Graphene films with large domain size by a twostep chemical vapor deposition process, *Science*, 324, 1312–1314, 2009.
- Li**, X., Cai, W., Kim, J. S., Nah, J., Piner, D. R., Velamakanni, A., Jung, I., Tutuc, E., Banerjee, S. K., Colombo, L. and Ruoff, R. S., Large area synthesis of high-quality and uniform graphene films, *Science*, 324, 1312–1314, 2009.
- Liu**, J., Arif, M., Zou, J., Khondaker, S. I., Zhai, L., Controlling poly(3-hexylthiophene) crystal dimension: nanowhiskers and nanoribbons, *Macromolecules*, 42, 9390–9393, 2009.
- Liu**, S., Wang, W. M., Briseno, A. L., Mannsfeld, S. C. B. and Bao, Z., Controlled Deposition of Crystalline Organic Semiconductors for field-effect-transistor applications, *Adv. Mater.*, 21, 1217–1232, 2009.
- Marinov**, O., Deen, M. J., Zschieschang, U. and Klauk, H., Organic thin-film transistors: Part I - compact modeling. Part II - parameter extraction, *IEEE Trans. Electron Devices.*, 56, 2952–2968 2009.
- Morita**, T., Singh, V., Nagamatsu, S., Oku, S., Takashima, W., Kaneto, K., Enhancement of transport characteristics in poly(3-hexylthiophene) films deposited with floating film transfer method, *Appl. Phys. Exp.*, 2, 111502, 2009.
- Oosterbaan**, W. D., Vrindts, V., Berson, S., Guillerez, S., Douheret, O. Ruttens, B. and Peter, J. D., Efficient formation, isolation and characterization of poly(3-alkylthiophene) nanofibers: probing order in function of side-chain length, *J. Mater. Chem.*, 19, 5424–543, 2009.

- Quan**, H., Zhang, B., Zhao, Q., Yuen, R. K. K. and Li, R. K. Y., Facile preparation and thermal degradation studies of graphite nanoplatelets (GNPs) filled thermoplastic polyurethane (TPU) nanocomposites, *Compos. Pt. A*, 40, 1506–1513, 2009.
- Raval**, H. N., Tiwari, S. P., Navan, R. R., Mhaisalkar, S. G. and Rao, V. R., Solution-processed bootstrapped organic inverters based on P3HT with a high-k gate, *IEEE Electron Device Lett.*, 30, 484–486, 2009.
- Singh**, A. K., Dwivedi, A. D. D., Chakrabarti, P. and Prakash, R., Electronic and optical properties of electrochemically polymerized Polycarbazole/Aluminum schottky diodes, *J. Appl. Phys.*, 105, 114506–114511, 2009.
- Sokolov**, A. N., Roberts, M. E. and Bao, Z., Fabrication of low-cost electronic biosensors, *Materials Today*, 12, 12–20, 2009.
- Valadares**, M., Silvestre, I., Calado, H. D. R., Neves, B. R. A., Guimarães, P. S. S., L. and Curyand, A., BEHP-PPV and P3HT blends for light emitting devices, *Mater. Sci. Eng.*, 29, 571–574, 2009.
- Verilhac**, J. M., Benwadih, M., Altazin, S. S., Jacob, Gwoziecki, R., Coppard, R. and Serbutoviez, C., Effects of amorphous semiconductor thickness on top gate staggered organic field-effect transistors, *Appl. Phys. Lett.*, 94, 143301–143303, 2009.
- Wang**, H., Nezich, D., Kong, J. and Palacios, T., Graphene frequency multipliers, *IEEE Elec. Dev. Lett. ED*, 30, 547–549, 2009.
- Wondmagegn**, W. and Pieper, R. J., Simulation of top-contact pentacene thin film transistor, *J. Comput Electron.*, 8, 19–24, 2009.
- Yan**, H., Chen, Z., Zheng, Y., Newman, C., Quinn, J. R., Dotz, F., Kastler, M. and Facchetti, A., A high-mobility electron-transporting polymer for printed transistors, *Nature*, 457, 679–686 2009.
- Zhang**, X., Device engineering of organic field-effect transistors towards complementary circuits” Georgia Institute of Technology, PhD Thesis, 2009.
- Zhao**, K., Xue, L., Liu, J., Gao, X., Wu, S., Han, Y. and Geng, Y., A new method to improve poly (3-hexyl thiophene)(P3HT) crystalline behavior: decreasing chains entanglement to promote order-disorder transformation in solution, *Langmuir*, 26, 471–477, 2009.
- Brabec**, C. J., Gowrisanker, S., Halls, J. J. M., Laird, D., Jia, S. and Williams, S. P., Polymer–fullerene bulk-heterojunction solar cells, *Adv. Mater.*, 22, 1339–1356, 2010.

- Chao**, Y. C., Chen, C. Y., Zan, H. W. and Meng, H. F., The influences of device geometry and p-type doping on a solution-processed polymer space-charge-limited transistor, *J. Phys. D: Appl. Phys.*, 43, 205101–205106, 2010.
- Jeon**, I. Y. and Baek, J. B., Nanocomposites derived from polymers and inorganic nanoparticles, *Mater.*, 3, 3654–3674, 2010.
- Jeong**, S. W., Han, D. H., Park, B. E., Fabrication and characterization of organic field effect transistors with poly(3-hexylthiophene) thin films, *J. Ceram. Soc. Jpn.*, 118, 1094–1097, 2010.
- Liang**, M. A., Chin. Effect of annealing on microstructure and electrical characteristics of doped poly (3-Hexylthiophene) films, *Phys. Lett.*, 27, 128502–128505, 2010.
- Liao**, L., Lin, Y. C., Bao, M., Cheng, R., Bai, J., Liu, Y., Qu, Y., Wang, K. L., Huang and Daun, X., High speed graphene transistors with a self-aligned nanowire gate, *Nature*, 467, 305–308, 2010.
- Marius**, T., Gopakumar, T. G., Shukryna, P. and Hietschold, M., Exploring the F16CoPc/Ag (110) interface using scanning tunneling microscopy and spectroscopy. 2. Adsorption-induced charge transfer effect, *J. Phys. Chem. C*, 114, 21548–21554, 2010.
- Nicholson**, P. G. and Castro, F. A., Organic photovoltaics: principles and techniques for nanometre scale characterization, *Nanotechnology*, 21, 492001, 2010.
- Pal**, T., Arif, M. and Khondaker, S. I., High performance organic phototransistor based on regioregular poly(3-hexylthiophene), *Nanotechnol.*, 21, 325201, 2010.
- Samitsu**, S., Shimomura, T., Heike, S., Hashizume, T. and Ito, K., Field-Effect Carrier Transport in Poly(3-alkylthiophene) nanofiber networks and isolated nanofibers, *Macromolecules*, 43, 7891–7894, 2010.
- Samitsu**, S., Shimomura, T., Heike, S., Hashizume, T. and Ito, K., Field effect carrier transport in poly(3-alkylthiophene) nanofiber networks and isolated nanofibers, *Macromol.*, 43, 7891–7894, 2010.
- Schaur**, S., Electrochemical doping of organic field-effect transistors to improve contact resistances, University of Linz, Graduation Thesis, 2010.
- Senkovskyy**, V., Sommer, M., Tkachov, R., Komber, H., Huck, W. T. S. and Kiriy, A., Convenient method to initiate Kumada catalyst transfer polycondensation using Ni(dppp)Cl<sub>2</sub> and Ni(dppp)Cl<sub>2</sub> and sterically hindered Grignard Compounds, *Macromolecules*, 43, 10157–10161, 2010.
- Slawomir**, B., Xianjie, L., William, R. S. and Mats, F., Fermi level pinning at donor-acceptor molecular hetero-junctions in multi-layered thin film stack of TTF and TCNQ, *Org. Electr.*, 11, 212, 2010.

- Sony:** Rollable OFET-driven OLED Display, 2010, <http://www.sony.net/SonyInfo/News/Press/201005/10-070E/>.
- Teng, Z.**, Studies of Inverted Organic Solar Cells Fabricated by Doctor Blading Technique University of Linkoping, Thesis, 2010.
- Wang, C.**, Jimison, L. H., Goris, L., McCulloch, I., Heeney, M. and Ziegler, A., A. Salleo, Microstructural origin of high mobility in high-performance poly(thienothiophene) thin-film transistors, *Adv. Mater.*, 22, 697–701, 2010.
- Wang, H.**, Hsu, A., Wu, J., Kong, J. and Palacios, T., Graphene-based ambipolar RF mixers, *IEEE Elec. Dev. Lett.*, 31, 906–908, 2010.
- Xia, F.**, Farmer, D. B., Lin, Y. M. and Avouris, P., Graphene field-effect transistors with high On/Off current ratio and large transport band gap at room temperature, *Nano Lett.*, 10, 715–718, 2010.
- Yang, F. Y.**, Hsu, M. Y., Hwang, G. W. and Chang, K. J., High-performance poly(3-hexylthiophene) top-gate transistors incorporating TiO<sub>2</sub> nanocomposite dielectrics, *Org. Electron.*, 11, 81, 2010.
- Zhang, Y.**, Boer, B. D., Blom and P. W. M., Morphology-dependent trap formation in high performance polymer bulk heterojunction solar cells, *Phys. Rev. B*, 81, 085201–085209, 2010.
- Zhang, Y.** and Blom, P.W.M., Enhancement of the hole injection into regioregular poly(3-hexylthiophene) by molecular doping, *Appl. Phys. Lett.*, 97, 083303–083305, 2010.
- Anthopoulos, D. T.**, Organic thin-film transistors: Operating principles and applications, Imperial College London, United Kingdom, 2011.
- Bounioux, C.**, Itzhak, R., Avrahami, R., Zussman, E., Frey, J., Katz, E. A. and Rozen, R. Y., Electrospun fibers of functional nanocomposites composed of single-walled carbon nanotubes, fullerene derivatives, and poly(3-hexylthiophene), *J. Poly. Sci. Part B: Polym. Phys.*, 49, 1263–1268, 2011.
- Jiang, L.**, Dong, H. and Hu, W., Controlled growth and of one-dimensional ordered of organic functional materials, *Soft Matter*, 7, 1615–1630, 2011.
- Kanicki, P. J.**, Organic Field-Effect Transistors and Electronics, University of Michigan - Ann Arbor, 2011.
- Lee, H.**, Organic surface/Interface Lab, Hanbat National University Yuseong-gu, Daejeon, Korea, 305–719, 2011.

- Riede**, M., Lussem, B. and Leo, K., *Comprehensive semiconductor science and technology, Organic semiconductors*, Elsevier Science ISBN: 978-0-444-53153-7, 4, 448–507, 2011.
- Sun**, S., Salim, T., Wong, L. H., Foo, Y. L., Boeya, F. and Lam, Y. M., A new insight into controlling poly(3-hexylthiophene) nanofiber growth through mixed-solvent approach for organic photovoltaics applications, *J. Mater. Chem.*, 21, 377–386, 2011.
- Wang**, L. G., Zhang, H. W., Tang, X. L., Song, Y. Q., Zhong, Z. Y. and Li, Y. X., Characterization of charge transport and electrical properties in disordered organic semiconductors, *Phys. Scr.*, 84, 045701–045707, 2011.
- Zhong**, C. M., Duan, C. H., Huang, F., Wu, H. B. and Cao, Y., Materials and devices toward fully solution processable organic light-emitting diodes, *Chem. Mater.*, 23, 326–340, 2011.
- Alborghetti**, S., Coey, J. M. D. and Stamenov, P., Dependence of charge carrier injection on the interface energy barrier in short-channel polymeric field effect transistors, *Appl. Phys. Lett.*, 100, 143301–143303, 2012.
- Arnaud**, D., Study of anisotropic polymer based electronic devices made with the floating film transfer method, Kyushu Institute of Technology, PhD Thesis, 2012.
- Carranza**, A. C., Nolasco, J., Estrada, M., Gwoziecki, R., Benwadih, M., Xu, Y., Cerdeira, A., Marsal, L. F., Ghibaudo, G., Iniguez, B. and Pallares, J., Effect of density of states on mobility in small-molecule n-type organic thin-film transistors based on a perylene diimide, *IEEE Electron Device Lett.* 33, 1201–1203, 2012.
- Colangelo**, L. M., and Baeumner, A. J., Recent progress in the design of nanofiber-based biosensing devices, *Lab Chip*, 12, 2612–2620, 2012.
- Cosseddu**, P., Milita, S. and Bonfiglio, A., Strain sensitivity and transport properties in organic field-effect transistors, *IEEE Electron Device Lett.*, 33, 113–115, 2012.
- Das**, S., Lee, J., Lim, T., Choi, Y., Park, Y. S. and Pyo, S., Effects of gate dielectric composition on the performance of organic thin-film devices, *Syn. Metals*, 162, 598–604, 2012.
- Jo**, S. B., Lee, W. H., Qiu, L., and Cho, K., Polymer Blends with Semiconducting Nanowires for Organic Electronics *J. Mater. Chem.*, 22, 4244–4260, 2012.
- Kalyani**, N. T. and Dhoble, S. J., Organic light emitting diodes: Energy saving lighting technology—A review, *Renew. Sustain. Energ. Rev.*, 16, 2696–2723, 2012.
- LG Electronics**: 55-inch OLED TV, 2012, <http://www.bgr.com/2012/01/13/ces-2012-rundown-new-tv-tech-excites-tablets-are-toast/>.

- Li, J.**, Zhao, Y., Tan, H. S., Guo, Y., Di, C., Yu, G., Liu, Y., Lin, M., Lim, S. H., Zhou, Y., Su, H., and Ong, B. S., A stable solution-processed polymer semiconductor with record high-mobility for printed transistors, *Scientific Report* 754, 1, 2012.
- Liu, Z.**, Li, J., Sun, Z., Tai, G., Lau, S. and Yan, F., The application of highly doped single-layer graphene as the top electrodes of semitransparent organic solar cells, *ACS Nano*, 6, 810–818, 2012.
- Pingel, P.**, Schwarzl, R. and Neher, D., Effect of molecular p-doping on hole density and mobility in poly(3-hexylthiophene), *Appl. Phys. Lett.*, 100, 143303–143305, 2012.
- Poly IC**, Roll-to-roll Printed Organic RFID Tags, 2006, <http://www.polyic.com/press-images.php> (accessed on 20th March 2012).
- Tiwari, S.**, Singh, A. K., Joshi, L., Chakrabarti, P., Takashima, W., Kaneto, K. and Prakash, R., Poly-3-hexylthiophene based organic field-effect transistor: Detection of low concentration of ammonia, *Sens. and Act. B: Chem.*, 171–172, 962–968, 2012.
- Tunc, A. V.**, Sio, A. D., Riedel, D., Deschler, F., Como, E. D., Parisi, J. and Hauff, E. V., Molecular doping of polymer:fullerene solar cells: effects on transport and solar cells, *Org. Electron.*, 13, 290–296, 2012.
- Wang, S.**, Pisula, W. and Mullen, K., Nanofiber growth and alignment in solution processed n-type naphthalene-diimide-based polymeric field-effect transistors. *J. Mater. Chem.*, 22, 24827–24831, 2012.
- Yamagishi, Y.**, Noda, K., Yamada, H. and Matsushige, K., Organic field-effect transistors with molecularly doped polymer gate buffer layer, *Synth. Met.*, 162, 1887–1893, 2012.
- Yu, X.**, Yu, J., Huang, W., Zhang, L., and Zeng, H., Source/drain electrodes contact effect on the stability of bottom-contact pentacene field-effect transistors, *AIP Advances*, 2, 022113–022118, 2012.
- Cataldo, S.**, and Pignataro, B., Polymeric thin films for organic electronics: properties and adaptive structures, *Structures Materials*, 6, 1159–1190, 2013.
- Chen, C. M.**, Liu, C. M., Tsai, M., C. Chen, H. C. and Wei, K. H., A nanostructured micellar diblock copolymer layer affects the memory characteristics and packing of pentacene molecules in non-volatile organic field-effect transistor memory devices, *J. Mater. Chem. C*, 1, 2328–2337, 2013.
- Dong, H.**, Fu, X., Liu, J., Wang, Z. and Hu, W., 25th anniversary article: key points for high-mobility organic field-effect transistors, *Adv. Mater.*, 25, 6158–6183, 2013.

- Kurihara**, N., Yao, A., Sunagawa, M., Ikeda, Y., Terai, K., Kondo, H., Saito, M., Ikeda, H. and Nakamura, H., High-Mobility Organic Thin-Film Transistors Over  $10 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$  Fabricated Using Bis(benzothieno)naphthalene Polycrystalline Films, *Jap. J. of Appl. Phys.*, 52, 05DC11, 2013.
- Li**, Y., Liu, C., Wang, Y., Yang, Y., Wang, X., Shi, Y. and Tsukagoshi, K., Flexible field-effect transistor arrays with patterned solution-processed organic crystals, *AIP Advances*, 3, 052123–052128, 2013.
- Menke**, T., Molecular Doping of Organic Semiconductors, Saechsische Landesbibliothek- Staats- und Universitaetsbibliothek, Ph.D Thesis, Dresden, 2013.
- Obreja**, A. C., Cristea, D., Gavrilă, R., Schiopu, V., Dinescu, A., Danila, M., Comanescu, F. Isocyanate functionalized graphene/P3HT based nanocomposites, *Appl. Surf. Sci.*, 276, 458–467, 2013.
- Sengez**, B., Dogruyol, Z., San, S. E., Kosemen, A., Yılmaz, F., Okutan, M., Yerli, Y., Demir, A. and Basaran, E. Use of side chain thiophene containing copolymer as a non-ionic gel-dielectric material for sandwich OFET assembly, *Microelectronic Engineering* 103, 111–117, 2013.
- Seyler**, H., Subbiah, J., Jones, D. J., Holmes, A. B., and Wong, W. W. H., Controlled synthesis of poly(3-hexylthiophene) in continuous flow, *Beilstein J Org Chem.*, 9, 1492–1500, 2013.
- Surya**, S. G., Dudhe, R. S., Saluru, D., Kooră, B. K., Sharma, D. K. and Rao, V. R., Comparison among different algorithms in classifying explosives using OFETs, *Sens. and Act. B*, 176, 46–51, 2013.
- Abanoz**, O. and Dimitrakopoulos, C., Recent advances in organic field effect transistors, *Turk. J. Phys.*, 38, 497–508, 2014.
- Botiz**, I. and Stingelin, N., Influence of Molecular Conformations and Microstructure on the Optoelectronic Properties of Conjugated Polymers, *Materials*, 7, 2273–2300, 2014.
- Kim**, G., Kang, S. J., Dutta, G. K., Han, Y. K., Shin, T. J., Noh, Y. Y. and Yang, C., A Thienoisindigo-Naphthalene Polymer with Ultrahigh Mobility of  $14.4 \text{ cm}^2/\text{V} \cdot \text{s}$  That Substantially Exceeds Benchmark Values for Amorphous Silicon Semiconductors, *J. Am. Chem. Soc.*, 136, 9477–9483, 2014.
- Kumar**, B., Kausik B. K. and Negi, Y. S., Organic thin film transistors: Structures, models, materials, fabrication and applications- A review, *Polym. Rev.*, 54, 33–111, 2014.
- Lee**, W. H. and Park, Y. D., Organic semiconductor/insulator polymer blends for high-performance organic transistors, *Polymers*, 6, 1057–1073, 2014.

- Tiwari, S., Singh, A. K. and Prakash, R.,** Poly(3-hexylthiophene) (P3HT)/ Graphene nanocomposite material based organic field effect transistor with enhanced mobility, *J. Nanosci. Nanotechnol.*, 14, 2823–2828, 2014.
- Tiwari, S., Takashima, W., Balasubramanian, S. K., Miyajima, S., Nagamatsu, S., Pandey, S. S. and Prakash, R.,** P3HT-fiber-based field-effect transistor: effects of nanostructure and annealing temperature, *Jap. J. of Appl. Phys.*, 53, 02160–021607, 2014.
- Tiwari, S., Takashima, W., Balasubramanian, S. K., Nagamatsu, S. and Prakash, R.,** A comparative study of spin coated and floating film transfer method coated poly (3-hexylthiophene) / poly (3-hexylthiophene)-nanofibers based field effect transistors, *J. Appl. Phys.*, 116, 094306–094311, 2014.
- Wakayama, Y., Hayakawa, R. and Seo, H. S.,** Recent progress in photoactive organic field-effect transistors, *Sci. Technol. Adv. Mater.*, 15, 024202, 2014.