

# Curriculum Vitae

## Wen-Chang Chen

-Professor of Chemical Engineering and Director of Polymer Science and Engineering,  
National Taiwan University, Taipei, Taiwan

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## Education

-B.S., Department of Chemical Engineering, National Taiwan University(1985)

-Ph.D., Department of Chemical Engineering, University of Rochester (1993)

## Professional Appointments

-Polymer Program Coordinator, National Science Council, 2009.01~

-Director, Polymer Nanotechnology Research Center, NTU, 2007~

-Professor and Director of Polymer science and Engineering, NTU, 2005.08~

- Associate Professor (1996 ~2000), Professor (2000~) of Chemical Engineering, NTU

-Researcher, Industrial Technology Research Institute (ITRI), 1993~1996

## Research Interest

Electronic and Optoelectronic Polymers, Block Copolymers, and Hybrid Materials.

## Research Publications

188 refereed research articles and 22 issued patents.

## Major Awards and Honors:

-Outstanding Research Award, National Science Council, 2004-2007, 2009-2012.

-Academic Industrial Economic Contribution Award, Ministry of Economic Affairs, 2009.

-Nano-Tech award, Taiwan Nanotechnology Industry Development Association, 2009.

-Service Achievement Award, Polymer Society (Taipei), 2009.

-Distinguished Professor, National Taiwan University, 2006~.

-Outstanding Paper Award, Polymer Society (Taipei), 2004, 2008.

-Outstanding Engineering Professor, Chinese Institute of Engineers, 2007.

-Academy-Industry Collaboration Ph.D. Thesis Award (Advisor), Ministry of Education, 2006.

-Research Accomplishment Award, NTU, 2004.

-Young Scholar Award, The Chinese Institute of Chemical Engineering, 1997.

-Best Paper Award, Research Publication Award, and Team Research Award, ITRI, 1995.

## Publication List of Wen-Chang Chen(陳文章)

### I. Refereed Journal Paper

-2011

1. Kuan-Kai Huang, Yi-Kai Fang, Jung-Ching Hsu, Chi-Ching Kuo, Wei-Hsuan Chang, and Wen-Chang Chen,\* (2011), "Synthesis, Micellar Structures, and Multifunctional Sensory Properties of Poly(3-hexylthiophene) -*block*-poly(2-(dimethylamino)ethyl methacrylate) Rod-Coil Diblock Copolymers", *J. Polym. Sci. Polym. Chem.*, 49, 147-155.
2. Dian-Han Li, Chia-Hung Lin, Ching-Yi Chen, Jung-Ching Hsu, Yu-Cheng Chiu, Wei-Tsuan Chang, Wen-Chang Chen\* "Poly[2,7-(9,9-dihexylfluorene)] -*block*-Poly(2-vinylpyridine) Rod-Coil Star-Block Copolymers: Synthesis, Micellar Structures and Photophysical Properties", *Macromol. Chem. Phys.* 2011, 212, 297-304.
3. Yu-Wen Wang, and Wen-Chang Chen,\* (2011), "New Photosensitive Colorless Polyimide-Silica Hybrid Optical Materials: Synthesis, Properties and Patterning", *Mater. Chem. Phys.*, 126, 24-30.
4. Jung-Ching Hsu, Cheng-Liang Liu, Wen-Chang Chen\*, Kenji Sugiyama, and Akira Hirao,\* (2011), "A Supramolecular Approach on using Poly(fluorenylstyrene)-*block*-poly(2-vinylpyridine):PCBM Composite Thin Films for Non-Volatile Memory Device Applications", *Macromol. Rapid Commun.*, 32, 528-533.
5. Yi-Kai Fang, Cheng-Liang Liu, and Wen-Chang Chen,\* (2011), "New Random Copolymers with Pendant Carbazole Donor and 1,3,4-Oxadiazole Acceptor for High Performance Memory Device Applications", *J. Mater. Chem.*, 21, 4778-4786. (feature on issue cover page)
6. *Cheng-Liang Liu, Chia-Hung Lin, Chi-Ching Kuo, Sung-Tso Lin, and Wen-Chang Chen,\* (2011), "Conjugated Rod-Coil Block Copolymers: Synthesis, Morphology, Photophysical Properties, and Stimuli-Responsive Application", Prog. Polym. Sci., 36, 603-637.*
7. *J. H. Oh, W. Y. Lee, T. Noe, W. C. Chen, M. Konemann, Z. Bao,\* (2011), "Solution-Shear-Processed Quaterylene Diimide Thin-Film Transistors Prepared by Pressure-Assisted Thermal Cleavage of Swallow Tails", J. Am. Chem. Soc., 133, 4204-4207.*
8. *Han-Sheng Sun, Chia-Hao Lee, Chia-Sheng Lai, Hsin-Lung Chen, Shih-Huang Tung,\* and Wen-Chang Chen,\* (2011), " Self-Assembled Structures in Rod-Coil Block Copolymers with Hydrogen-Bonded Amphiphiles", Soft Matter, 7, 4198-4206.*
9. *Cheng-Liang Liu, Tadanori Kurosawa, An-Dih Yu, Tomoya Higashihara, Mitsuru Ueda,\* and Wen-Chang Chen,\* (2011), "New Dibenzothiophene-Containing Donor-Acceptor Polyimides For High Performance Memory Device Applications", J. Phys. Chem. C, 115, 5930-5939.*
10. Jung-Yao Chen, Chi-Ching Kuo, Chia-Sheng Lai, Wen-Chang Chen,\* and Hsin-Lung Chen,\* "Manipulation on The Morphology and Electrical Properties of Poly(3-hexylthiophene) Aligned Electrospun Nanofibers For High Performance Field-Effect Transistors", *Macromolecules*, 44, 2883-2892.
11. *Yi-Kai Fang, Cheng-Liang Liu, Guei-Yu Yang, Po-Cheng Chen, Wen-Chang Chen,\* (2011), "New Donor-Acceptor Random Copolymers with Pendent Triphenylamine and 1,3,4-Oxadiazole for High Performance Memory Device Applications", Macromolecules, 44, 2604-2612.*
12. Chi-Ching Kuo, Chia-Hung Lin, Ping Tzeng, and Wen-Chang Chen,\* "Morphology and Photophysical Properties of Luminescent Electrospun Fibers Prepared from Diblock and Triblock Polyfluorene-*block*-Poly(2-vinylpyridine)/PEO Blends", *J. Polym. Res.*, in press.
13. *Yi-Cang Lai, Kaoru Ohshimizu, Ayumi Takahashi, Jung-Ching Hsu, Tomoya Higashihara,\* Mitsuru Ueda,\* and Wen-Chang Chen,\* (2011), "Synthesis of All-Conjugated*

*Poly(3-hexylthiophene)-block-Poly(3-(4'-(3'',7''-dimethyloctyloxy)-3'-pyridinyl)thiophene) and Its Blend for Photovoltaic Applications*, *J Polym. Sci. Part A: Polym. Chem.*, 49, 2577-2587.

14. *En-Chen Chen, Shin-Rong Tseng, Yu-Chiang Chao, Hsin-Fei Meng\**, *Chih-Feng Wang, Wen-Chang Chen\**, *Chian-Shu Hsu, Sheng-Fu Horng* “Polymer Infrared Photo-detector with High Sensitivity Up to 1100 nm”, *Synth. Met.*, in press.
15. *Cheng-Liang Liu\** and *Wen-Chang Chen\** *Donor-Acceptor Polymers for Advanced Memory Device Applications*, *Polymer Chemistry*, in press.
16. *C. J. Chen, H. J. Yen, W. C. Chen, and G. S. Liou*, “Novel High Performance Polymer Memory Devices Containing *O(Me)2-Tetraphenyl-P-Phenylenediamine Moieties*”, *J. Polym. Sci. Part A: Polym. Chem.*, in press.
17. *Jung-Ching Hsu, Yougen Chen, Toyoji Kakuchi,\* and Wen-Chang Chen\** “Synthesis of Linear and Star-shaped Poly[4-(diphenylamino)benzyl methacrylate]s by Group Transfer Polymerization and Their Electrical Memory Device Applications”, *Macromolecules*, in press.

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18. *C. C. Chueh, M. H. Lai, J. H. Tsai, C. F. Wang, and W. C. Chen\**, “Syntheses, Properties, and Field Effect Transistors of Small Band Gap Quinoxaline- and Thienopyrazine-Vinylene/Ethynylene Conjugated Polymers”, *J. Polym. Sci. Polym. Chem.*, 48, 74-81 (2010).
19. *C. C. Kuo, Y. C. Tung, and W. C. Chen,\** “Morphology and pH Sensing Characteristics of New Luminescent Electrospun Fibers Prepared From Poly(phenylquinoline)-block-Polystyrene/Polystyrene Blends”, *Macromol. Rapid Commun.*, 31, 65-70 (2010).
20. *Yanqing Tian,\* Ching-Yi Chen, Hin-Lap Yip, Wen-Chung Wu, Wen-Chang Chen,* and *Alex K.-Y. Jen\**, “Synthesis, Nanostructure, Functionality, and Application of Polyfluorene-block-Poly(Nisopropylacrylamide)”, *Macromolecules*, 43, 282-291 (2010).
21. *G. S. Liou, P. H. Lin, H. J. Yen, Y. Y. Yu, T. W. Tsai and W. C. Chen*, “Highly flexible and optical transparent 6F-PI/TiO<sub>2</sub> optical hybrid films with tunable refractive index and excellent thermal stability”, *J. Mater. Chem.*, 20, 531-536 (2010)
22. *Yanqing Tian,\* Wen-Chung Wu, Ching-Yi Chen, Sei-Hum Jang, Meng Zhang, Tim Strovas, Judy Anderson, Brad Cookson, Yongzhong Li, Deirdre Meldrum, Wen-Chang Chen, Alex K.-Y. Jen\**, (2010), “Utilization of micelles formed from poly(ethylene glycol)-block-poly( $\epsilon$ -caprolactone) block copolymers as nanocarriers to enable hydrophobic red two-photon absorbing (2PA) emitters for cells imaging” *J. Biomed. Mater. Res. Part A*, 93A, 1068-1079.
23. *Wen-Ya Lee, Kai-Fang Cheng, Then-Fu Wang, Wen-Chang Chen\**, and *Feng-Yu Tsai\** “Photovoltaic properties of low-band-gap fluorene-based donor-acceptor copolymers”, *Thin Solid Films*, 518, 2119-2123 (2010).
24. *Wen-Chung Wu, Ching-Yi Chen, Yanqing Tian, Sei-Hum Jang, Yuning Hong, Yang Liu, Rongrong Hu, Ben Zhong Tang, Chin-Ti Chen, Wen-Chang Chen, and Alex K.-Y. Jen\**, (2010), “Enhancement of Aggregation-Induced Emission in Dye-encapsulated Polymeric Micelles for Bioimaging”, *Adv. Funct. Mater.*, 20, 1413-1423. **(feature on issue cover page)**
25. *Yi-Kai Fang, Wen-Ya Lee, Chi-Shen Tuan, Ling-Hui Lu, Wan-Jung Teng, and Wen-Chang Chen\** “New Poly(4,4'-dicyano-4''-vinyl-triphenylamine) Host Material for Single-Layer Ir-complex Phosphorescent Light Emitting Devices”, *Polym. J.*, 42, 327-335
26. *T. Kuorosawa, C. C. Chueh, C. L. Liu, T. Higashihara, M. Ueda,\* and W. C. Chen,\** (2010), “High Performance Volatile Polymeric Memory Devices Based on Novel Triphenylamine-based

Polyimides Containing Mono- or Dual-mediated Phenoxy Linkages “, *Macromolecules*, 43, 1236-1244.

27. Y. Y. Wang and W. C. Chen\*, (2010), “Synthesis, properties, and antireflective applications of new colorless polyimide-inorganic hybrid optical materials”, *Composite Sci. Technol.*, 70, 769-775.
28. G. S. Liou, P. H. Lin, H. J. Yen, Y. Y. Yu, and W. C. Chen, (2010), “Flexible Nanocrystalline -Titania/Polyimide Hybrids with High Refractive Index and Excellent Thermal Dimensional Stability” *J. Polym. Sci. Part A: Polym. Chem.*, 48, 1433–1440.
29. J. H. Tsai, C. C. Chueh, W. C. Chen\* C. Y. Yu, G. W. Hwang, and C. Ting, \* E. C. Chen, and H. F. Meng (2010), “New Thiophene-Phenylene-Thiophene (TPT)–Acceptor Random Conjugated Copolymers For Optoelectronic Applications”, *J. Polym. Sci. Part A: Polym. Chem.*, 2351-2360.
30. Jung-Hsun Tsai, Wen-Ya Lee, Wen-Chang Chen,\* Chao-Ying Yu, Gue-Wuu Hwang, and Ching Ting\*, (2010), “New Two-Dimensional Thiophene-Acceptor Conjugated Copolymers For Field Effect Transistor and Photovoltaic Cell Applications”, *Chem. Mater.*, 22, 3290-3299.
31. Ping Tzeng, Chi-Ching Kuo, Sung-Tso Lin, Yu-Chen Chiu, and Wen-Chang Chen,\* (2010), “New Thermoresponsive Luminescent Electrospun Nanofibers Prepared From Poly[2,7-(9,9-dihexylfluorene)]-*block* -poly(*N*-isopropylacrylamide)/PMMA Blends”, *Macromol. Chem. Phys.*, 211, 1408-1416.
32. C. D. Liu, D. Y. Shu, C. T. Tsao, J. L. Han, F. Y. Tsai, F. C. Chen, W. C. Chen, and K. H. Hsieh,\* (2010), “Synthesis and characterization of well-dispersed multi-walled carbon nanotube/low-bandgap poly(3,4-alkoxythiophene) nanocomposites”, *Composite Sci. Technol.*, 70, 1242-1248.
33. J. H. Tsai, Y. C. Lai, T. Higashihara, C. J. Lin, M. Ueda,\* and W. C. Chen,\* (2010), “Enhancement of P3HT/PCBM Photovoltaic Efficiency using the Surfactant of Triblock Copolymer Containing Poly(3-hexylthiophene) and Poly(4-vinyltriphenylamine) Segments”, *Macromolecules*, 43, 6085-6091.
34. Wei-Hsuan Chang, Shih-Hao Chou, Jiang-Jen Lin,\* Wen-Chang Chen,\* and Yu-Jane Sheng,\* (2010), “Thin film morphologies of  $\pi$ -conjugated rod-coil block copolymers with thermoresponsive properties”, *J. Chem. Phys.*, 312, art no. 214901.
35. J. H. Oh, S.-L. Suraru, W.-Y. Lee, M. Könemann, H. W. Höffken, C. Röger, R. Schmidt, Y. Chung, W.-C. Chen, F. Würthner,\* Z. Bao,\* (2010), “High-Performance Air-Stable n-Type Organic Transistors Based on Core-Chlorinated Naphthalene Tetracarboxylic Diimides”, *Adv. Funct. Mater.*, 20, 2148-2156.
36. Jung-Ching Hsu, Kenji Sugiyama, Yu-Cheng Chiu, Akira Hirao,\* and Wen-Chang Chen,\* (2010), “Synthesis of New Star-Shaped Polymers with Styrene-Fluorene Conjugated Moieties and Their Multicolor Luminescent Ordered Microporous Films”, *Macromolecules*, 43, 7151-7158.
37. Y. K. Fang, C. L. Liu, C. Li, C. J. Lin, R. Mezzenga,\* and W. C. Chen\*, (2010) “Synthesis, Morphology and Properties of New Poly(3-hexylthiophene)- *block*-poly(vinylphenyl oxadiazole) Donor-Acceptor Rod-Coil Block Copolymers and Their Memory Device Applications”, *Adv. Funct. Mater.*, 20, 3012-3024.
38. Mei-Hsiu Lai, Jung-Hsun Tsai, Chu-Chen Chueh, Chih-Feng Wang and Wen-Chang Chen,\* (2010), “Syntheses of New 3,6-Carbazole based Donor-Acceptor Conjugated Copolymers for Optoelectronic Device Applications”, *Macromol. Chem. Phys.*, 211, 2017-2025.
39. Yu-Cheng Chiu, Chi-Ching Kuo, and Wen-Chang Chen\*, (2010) “Thermo-responsive Luminescent Electrospun Fibers Prepared From Poly(DMAEMA-*co*-SA-*co*-StFl) Multifunctional Random Copolymers”, *ACS Appl. Mater. Interfaces*, 2, 3340-3347.

40. N. Somanathan, C. K. Pandiyarajan, W. A. Goedel and W. C. Chen "Physico-Mechanical Studies on the Langmuir-Blodgett films of Polythiophene containing Mesogenic Side chains", *J. Polym. Sci. Polym. Phys.*, 47, 173-182 (2009).
41. M. H. Lai, C. C. Chueh, Wen-Chang Chen\* Jyh-Lih Wu, and Fang-Chung Chen "Synthesis and Properties of New Dialkoxyphenylene Quinoxaline based Donor-Acceptor Conjugated Polymers and Their Applications on Thin Film Transistors and Solar Cells", *J. Polym. Sci. Polym. Chem.*, 47, 973-985 (2009).
42. Y. C. Sheen, W. C. Chang, W. C. Chen, Y. H. Chang, Y. C. Huang, and F. C. Chang, "Non-Fluorinated Superamphiphobic Surfaces Through Sol-Gel Processing of Methyltriethoxysilane and Tetraethoxysilane", *Mater. Chem. Phys.*, 114, 63-68 (2009).
43. K. F. Cheng, M. H. Lai, C. F. Wang, W. C. Wu, and W. C. Chen,\* "New Fluorene-Pyrazino[2,3-g]quinoxaline Conjugated Copolymers: Synthesis, Optoelectronic Properties, and Electroluminescence Characteristics", *J. Appl. Polym. Sci.*, 112, 2094-2101 (2009).
44. H. W. Su, and W. C. Chen,\* "Nanoporous Poly(Methyl Silsesquioxane) Films using Core-Shell Silsesquioxane as Porogen", *Mater. Chem. Phys.*, 114, 736-741 (2009).
45. W. Y. Lee, K. F. Cheng, C. L. Liu, S. T. Lin, C. C. Chueh, F.-Y. Tsai, and W. C. Chen\*, "High Hole Mobility From Thiophene-Thienopyrazine Copolymer based Thin Film Transistors", *J. Polym. Res.*, 16, 239-244(2009)
46. H. C. Chen, C. T. Wang, C. C. Bai, and W. C. Chen\*, "Full Color Light-Emitting Electrospun Nanofibers Prepared From PFO/MEH-PPV/PMMA Ternary Blends", *J. Polym. Sci. Polym. Phys.*, 47, 463-470 (2009).
47. C. C. Kuo, C. T. Wang, and W. C. Chen\* "Poly(3-hexylthiophene)/Poly(methyl methacrylate) Core-Shell Electrospun Fibers for Sensory Applications", *Macromolecular Symp.* 210, 918-925 (2009).
48. Yi-Chih Tung and Wen-Chang Chen\*, "Poly[2,7-(9,9 -dihexylfluorene)]-*block*-poly[3-(trimethoxysilyl)propyl methacrylate] (PF-*b*-PTMSPMA) Rod-Coil Block Copolymers: Synthesis, Morphology and Photophysical Properties in Mixed Solvents", *React. Funct. Polym.*, 69, 507-518 (2009).**(invited research article)**
49. Jung-Hsun Tsai, Wei-Ren Tu, Cheng-Liang Liu, Wen-Chung Wu, Wen-Chang Chen,\* "Synthesis and Properties of New Small Band gap Conjugated Polymers: Methine Bridged Poly(3,4-ethylenedioxyppyrrole)", *Polymer J.*, 41, 363-369 (2009).
50. W. S. Chiang, C. H. Lin, C. L. Yeh, B. Nandan, P. N. Hsu, C. W. Lin, H. L. Chen,\* and W. C. Chen,\* "Tetragonally Packed Cylinder Structure of Comb-Coil Block Copolymer Bearing Hetero-arm Architecture" *Macromolecules*, 42, 2304-2308 (2009).
51. Jung-Hsun Tsai, Chu-Chen Chueh, Mei-Hsiu Lai, Chih-Feng Wang, Wen-Chang Chen\* Bao-Tsan Ko, and Ching Ting, "Synthesis of New Indolocarbazole-Acceptor Alternating Conjugated Copolymers and Their Applications to Thin Film Transistors and Photovoltaic Cells", *Macromolecules*, 42, 1897-1905 (2009).
52. Y. F. Huang, C. W. Chang, D.-M. Smilgies, U. S. Jeng, A. R. Inigo, J. D. White,\* K. C. Li, T. S. Lim, T. D. Li, H. Y. Chen, S. A. Chen, W. C. Chen and W. S. Fann "Correlating Nano-morphology with Charge Transport Anisotropy in Conjugated Polymer Thin Films", *Adv. Mater.*, 21, 2988-2992(2009)
53. Kenji Sugiyama, Akira Hirao\* Jung-Ching Hsu, Yi-Chih Tung, and Wen-Chang Chen\*, "Living Anionic Polymerization of Styrene Derivatives p-Substituted with  $\pi$ -Conjugated Oligo(fluorene)

Moieties”, *Macromolecules*, 42, 4053-4062 (2009).

54. Hsieh-Chih Chen, Cheng-Liang Liu, Chi-Chung Bai, Nian-Hau Wang, Chih-Shan Tuan, and Wen-Chang Chen\* “Morphology and Photophysical Properties of DB-PPV/PMMA Luminescent Electrospun Fibers”, *Macromol. Chem. Phys.*, 210, 918-925 (2009)(**invited research article**).
55. H. W. Chang, K. H. Lin, C. C. Chueh, G. S. Liou,\* and W. C. Chen,\* “New *P*-type of Poly(4-methoxy-triphenylamine)s Derived by Coupling Reactions: Synthesis, Electrochromic Behaviors, and Hole Mobility”, *J. Polym. Sci. Polym. Chem.*, 47, 4037-4050(2009)
56. F. C. Chen,\* J. L. Wu, C. L. Lee, W. C. Huang, H. M. P. Chen, and W. C. Chen, “Flexible Polymer Photovoltaic Devices Prepared with Inverted Structures on Metal Foils”, *IEEE Electro. Dev. Lett.*, 30, 727-729 (2009).
57. Nam-Ho You, Chu-Chen Chueh, Cheng-Liang Liu, Mitsuru Ueda\* and Wen-Chang Chen\*, “Synthesis and Memory Device Characteristics of New Sulfur- Donor Containing Polyimides”, *Macromolecules*, 42, 4456-4463 (2009).
58. Chaoxu Li, Jung-Ching Hsu, Kenji Sugiyama, Akira Hirao, Wen-Chang Chen,\* Raffaele Mezzenga,\* “Synthesis and self-assembly behaviour of poly(fluorenyl styrene)-block-poly(2-vinyl pyridine) block copolymers and their blends with single wall carbon nanotubes (SWCNTs)”, *Macromolecules*, 42, 5793-5801(2009)
59. Sung-Tso Lin, Keita Fuchise, Yougen Chen, Ryosuke Sakai, Toshifumi Satoh, Toyoji Kakuchi\* and Wen-Chang Chen\*, “Synthesis, Thermomorphic Characteristics, and Fluorescent Properties of Poly[2,7-(9,9-dihexylfluorene)]-block-poly(N-isopropylacrylamide)-block-poly(N-hydroxyethylacrylamide) Rod-Coil-Coil Triblock Copolymers”, *Soft Matter*, 5, 3761-3770 (2009)
60. Wei-Lun Chang, Hung-Wei Su, Wen-Chang Chen,\* “Synthesis and Properties of Photosensitive Polyimide-Nanocrystalline Titania Optical Thin Films”, *Euro. Polym. J.*, 45, 2749-2759(2009)
61. Cheng-Ting Wang, Chi-Ching Kuo, Hsieh-Chih Chen, and Wen-Chang Chen\* “Nonwoven and Aligned Electrospun Multicomponent Luminescent Polymer Nanofibers: Effects of Aggregated Morphology on the Photophysical Properties”, *Nanotechnology*, 20, article no.: 375604 (2009)( **highlighted by nanotechweb, 2009/9/24**)
62. Cheng-Liang Liu, Jung-Ching Hsu, Wen-Chang Chen,\* Kenji Sugiyama, and Akira Hirao\*, “Non-volatile Memory Devices Based on Poly(styrene) Derivatives with Electron-Donating Oligofluorene Pendent Moieties”, *ACS Appl. Mater. & Interface*, 1, 1974-1979(2009).
63. Keita Fuchise, Ryohei Kakuchi, Sung-Tso Lin, Ryosuke Sakai, Shin-Ichiro Sato, Toshifumi Satoh, Wen-Chang Chen, and Toyoji Kakuchi\*, “Control of Thermoresponsive Property of Urea End-Functionalized Poly(*N*-isopropylacrylamide) Based on the Hydrogen Bond Assisted Self-Assembly in Water”, *J. Polym. Sci. Polym. Chem.*, 47, 6259-6268(2009).
64. C. C. Chueh, T. Higashihara, J. H. Tsai, M. Ueda,\* and W. C. Chen\* “All-Conjugated Diblock Copolymer of Poly(3-hexylthiophene)-*block* -poly(3-phenoxyethylthiophene) For Field-Effect Transistor and Photovoltaic Applications”, *Org. Electron.*, 10, 1541-1548(2009)

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65. H. W. Su and W. C. Chen,\* “High Refractive Index Polyimide-Nanocrystalline Titania Hybrid Optical Materials”, *J. Mater. Chem.*, 18, 1139-1145(2008).
66. W. Y. Lee, C. W. Chen, C. C. Chueh, C. C. Yang, and W. C. Chen,\* “Synthesis of New Fluorene-Indolocarbazole Alternating Copolymers for Light-Emitting Diodes and Field Effect Transistors”, *Polymer J.*, 40, 249-255 (2008).
67. Y. Tian, C. Y. Chen, C. C. Yang, A. C. Young, S. H. Jang, W. C. Chen, and A. K. Y. Jen,\*

“2-(2'-Hydroxyphenyl) benzoxazole-containing Two-Photon Absorbing Chromophores as Sensors for Zinc and Hydroxide Ions”, *Chem. Mater.*, 20, 1977-1987 (2008)

68. C. S. Li, W. C. Wu, Y. J. Sheng,\* and W. C. Chen,\* “Effects of Chain Architectures on the Surface Structures of Conjugated Rod-Coil Block Copolymer Brushes”, *J. Chem. Phys.*, 128, 154908 (2008).
69. F. C. Chen,\* J. L. Wu, S. S. Yang, K. H. Hsieh, W. C. Chen, “Cesium Carbonate as a Functional Interlayer for Polymer Photovoltaic Devices”, *J. Appl. Phys.*, 103, 103721(2008).
70. H. W. Su and W. C. Chen,\* “Photosensitive High Refractive Index Poly(acrylic acid)-graft-Poly(ethylene glycol methacrylate)-Nanocrystalline Titania Hybrid Films”, *Macromol. Chem. Phys.*, 209, 1778-1786(2008). (**feature on issue cover page**)
71. K.-F. Cheng, C. C. Chueh, C. H. Lin, and W. C. Chen,\* “Synthesis, Properties, and Field Effect transistor Characteristics of New Thiophene-[1,2,5]thiadiazolo[3,4-g]quinoxaline-Thiophene based Conjugated Polymers”, *J. Polym. Sci. Part A: Polym. Chem.*, 46, 6305-6316(2008).
72. S. T. Lin, Y. C. Tung, W. C. Chen,\* “ Synthesis, Structures and Multifunctional Sensory Properties of Poly[2,7-(9,9-dihexylfluorene)] -*block*-poly[2-(dimethylamino)ethyl methacrylate] Rod-Coil Diblock Copolymers”, *J. Mater. Chem.*, 18, 3985-3992(2008).
73. C. L. Liu, J. H. Tsai, W. Y. Lee, W. C. Chen\* and S. A. Jenekhe\*, “New Didecyloxyphenylene–Acceptor Alternating Conjugated Copolymers: Synthesis, Properties, and Optoelectronic Device Applications”, *Macromolecules*, 41, 6952-6959(2008).
74. C. C. Kuo, Y. C. Tung, C. H. Lin, and W. C. Chen\* “Novel Luminescent Electrospun Fibers Prepared From Conjugated Rod-Coil Block Copolymer of Poly[2,7-(9,9-dihexylfluorene)]-*block*-Poly(methylmethacrylate)”, *Macromol. Rapid Commun.*, 29, 1711-1715 (2008). (**Feature on issue cover**)
75. F. C. Chen,\* J. L. Wu, K. H. Hsieh, W. C. Chen, and S. W. Lee\* “ Polymer photovoltaic devices with highly transparent cathodes”, *Org. Electron.*, 9, 1132-1135(2008)
76. W. S. Chiang, C. H. Lin, B. Nandan, C. L. Yeh, M. H. Rahman, W. C. Chen, and H. L. Chen,\* “Molecular Architecture Effect on the Self-Assembly Behavior of Comb-Coil Block Copolymers displaying Lamellae-within-with Lamellae Morphology “, *Macromolecules*, 41, 8138-8147 (2008).
77. C. H. Lin, W. C. Chen,\* and H. L. Chen\* “Hetero-arm Star Polystyrene-*block*-Poly(4-vinylpyridine) (PS-*b*-P4VP) :Multiple Morphologies in Dilute Solutions”, *Macromol. Chem. Phys.*, 209, 2349-2358(2008).
78. C. C. Kuo, C. T. Wang, and W. C. Chen\* Highly Aligned Luminescent Electrospun Nanofibers Prepared From Polyfluorene /PMMA Blends: Fabrication, Morphology, Photophysical Properties, and Sensory Applications”, *Macromol. Mater. Eng.*, 293, 999-1008(2008).
79. C. H. Lin, Y. C. Tung, J. Ruokolainen, R. Mezzenga,\* and W. C. Chen,\* “Poly[2,7-(9,9-dihexylfluorene)]-*block* -Poly(2-vinylpyridine) Rod-Coil and Coil-Rod-Coil Block Copolymers: Synthesis, Morphology and Photophysical Properties in Methanol/THF Mixed Solvents”, *Macromolecules*, 41, 8759-8769 (2008).

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**II. Issued Patents**

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### III. Invited Presentation in an International Conferences

1. B. T. Liu, W. C. Chen, and J. P. Hsu, “Gradient-Index Polymer Optical Fibers Prepared from a Co-extrusion Process: Mathematical Modeling and Applications”, *Proc. of Asian Plastics Technical Conference*, Taipei, p.155-160, Oct. 7-8, 1997. **(Invited Lecture)**
2. W. C. Chen, Y. Chang, and M. S. Wei, “ Theoretical Analysis on The Preparation of Gradient-index Polymer Optical Fibers”, 2000 POF Conference, Cambridge, USA, September 5-8, 2000. **(Invited Lecture)**
3. C. C. Chang, and W. C. Chen, “Synthesis and Optical Properties of Polyimide-Silica Hybrid Materials”, Second International Symposium on Polyimides and Other High Temperature Polymers, Newark, USA, Dec. 3-6, 2001. **(Invited Lecture)**

4. W. C. Chen and Long-Hua Lee, "Polymer-Titania Thin Films For Optical Waveguides", ACS National meeting , April 7-11, 2002, Orlando, USA. (**Invited Lecture**)
5. W. C. Liu and W. C. Chen, "Synthesis and characterization of Low Dielectric constant Nanoporous Silica from Hydrogen Silsesquioxane Oligomers", 19th International VLSI Multilevel Interconnection conference", Singapore, Nov. 18-20, 2002. (**Invited Lecture**)
6. W. C. Chen, (2003), "Preparation and Characterization of Low Dielectric Constant Nanoporous Poly(silsesquioxane) Films by the Templating of Amphiphilic Block Copolymers, PS-*b*-P2VP", Japan-Taiwan Symposium on Nanoscience and Nanotechnology, Osaka, Japan, October 27-31, 2003. (**Invited Lecture**)
7. C. H. Lee, B. Nandan, H. L. Chen, and W. C. Chen, "Nanostructured Materials Derived from Various Molecular Architectures of Poly(styrene)-block- Poly(2-vinylpyridine)" IUPAC Macro 2006, Rio de Janeiro, Brazil, July 15-20, 2006. (**Invited Lecture**)
8. W. C. Chen, " Donor-Acceptor Conjugated Polymer Systems: Theoretical Electronic Structures, Synthesis, and Device Applications", 2006 Taiwan-China Cross-Strait Symposium, DunHuang, August 27-30, 2006. (**Invited Lecture**).
9. W. C. Wu, Y. Tian, C. Y. Chen, C. S. Lee, Y. J. Sheng, W. C. Chen,\* and Alex K.-Y. Jen, \* "Theoretical and Experimental Studies on the Surface Structures of Conjugated Rod-Coil Block Copolymer Brushes", 2007 ACS Spring National Meeting, Chicago, March 25-29. (**Invited Lecture**).
10. W. C., C. S. Lee, Y. J. Sheng, and W. C. Chen, " Molecular Architecture Effects on the Morphologies and Photophysical Properties of Rod-Coil Copolymer Brushes", International Symposium on Advanced Materials and Nano-materials with Precisely Designed Architectures, Sapporo, Japan Oct.4-6, 2007 (**Plenary Lecture**).
11. W. C. Chen, "Rod-Coil Block Copolymers: Interplay between Morphology and Photophysical Properties", *New Trend in Asian Polymer Science and Technology* , Jeju, S. Korea, Nov. 21-23, 2007. (**Invited Speech**)
12. Chi-Ching Kuo, Chen-Ting Wang, and Wen-Chang Chen, "Photophysics and Sensory Applications of Electrospun Semiconducting Polymer Nanofibers", IUPAC Macro 2008, Taipei, June 29~July 4, 2008. (**Invited Lecture**)
13. Chia-Hung Lin, Yi-Chih Tung, Janne Ruokolainen, Raffaele Mezzenga, and Wen-Chang Chen, "Poly[2,7-(9,9-dihexylfluorene)]-block -Poly(2-vinylpyridine) Rod-Coil and Coil-Rod-Coil Block Copolymers : Synthesis, Solution Morphology and Photophysical properties", *2<sup>nd</sup> Japan-Korea Joint Seminar 2008 and International Symposium: Synthesis and Application of Advanced Functional Materials*, Tokyo, Nov. 4-6 (2008). (**Plenary Lecture**)
14. W. C. Chen, "Fluorene Based Conjugated Rod-Coil Block Copolymers: Synthesis, Morphology, Photophysical Properties, and Stimuli-Responsive Applications", *The 13th Asian Chemical Congress*, Shanghai, China, September 14-16 (2009). (**Invited Lecture**)



15. W. C. Chen, “Molecular Architecture Effects on the Morphologies and Photophysical Properties of Fluorene based Rod-Coil Block Copolymers”, *International Symposium on Nano Structures: Synthesis, Characterization, and Application*, Gwangju, Korea, October 7-10, 2009. (**invited Lecture**)
16. J. H. Tsai, W. C. Chen, and C. Ting “Donor-acceptor Conjugated Polymers for Optoelectronic Applications”, *Advanced Polymeric Materials and Technology Symposium 2010 (APMT-2010)*, Jeju, Korea, Jan. 24-27, 2010. (**Invited Lecture**)
17. W. C. Chen, “New Conjugated Rod-Coil Block Copolymers for Optoelectronic Device Applications”, *2010 Japan-Taiwan Bilateral Polymer Symposium-Toward Novel Materials Based On Advanced Macromolecular Sciences (JTBPS'10)*, Sapporo, Japan, June 30-July 3, 2010. ( **Plenary Lecture**)