Chi-How Peng, Ph.D. Curriculum Vitae

Associate Professor of Chemistry

Department of Chemistry
Frontier Research Center on Fundamental and Applied Sciences of Matters
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Education & Training

2009-2011 Postdoctoral Researcher
Department of Chemistry, Carnegie Mellon University
(Advisor: Professor Krzysztof Matyjaszewski)

2004-2009 Doctor of Philosophy in Organometallic Chemistry
Department of Chemistry, University of Pennsylvania
(Advisor: Professor Bradford B. Wayland)

1999-2001 Master of Science in Inorganic Chemistry
Department of Chemistry, National Taiwan University
(Advisor: Professor Shie-Ming Peng)

1995-1999 Bachelor of Science in Chemistry
Department of Chemistry, National Taiwan University

Positions

2016 – present National Tsing Hua University, Hsinchu, Taiwan
Associate Professor of Chemistry

2015 – 2018 National Tsing Hua University, Hsinchu, Taiwan
Chief of the Division of Intellectual Property and Technology Licensing

2011 – 2016 National Tsing Hua University, Hsinchu, Taiwan
Assistant Professor of Chemistry

Research Interests

- Design and synthesis of organometallic complexes or organic compounds applied to controlled/living polymerization
- Application and mechanism study of cobalt complexes mediated radical polymerization
- Development of zinc and aluminum complexes to mediate the ring opening polymerization (ROP) with a high stereoselectivity
- Hybridization of different living polymerization methods for the synthesis of novel block copolymers
- Application of block copolymers in catalysis and biomedical materials

Honors and Awards

1. 2018 Shui-Mu Foundation of Chemistry, Award for Outstanding Young Scholar (財團法人水木化學文教基金會傑出青年學者獎)
2. 2016 POLMER_10th Feng Xinde Polymer Prize for the Best Chinese Paper, nominations for the

Prize (第十届冯新德高分子奖最佳文章提名奖）

3. 2014 National Tsing Hua University_ Outstanding Research Award (傑出學術研究出版獎勵)
4. 2012 National Tsing Hua University _Outstanding New Assistant Professor Award (激勵優秀新聘助理教授獎勵)

Peer-Reviewed Publications

1. Lu, H.-H.; Huang, C.-H.; Shiue, T.-Y.; Wang, F.-S.; Chang, K.-K.; Chen, Y.; **Peng, C.-H.*** "Highly Efficient Gene Release in Spatiotemporal Precision Approached by Light and pH Dual Responsive Copolymers " *Chem. Sci.* **2019,** *10*, 284.
2. Wang, F.-S.; Wang, T.-F.; Lu, H.-H.; Ao-Ieong, W.-S.; Wang, J.; Chen, H.-L.*; **Peng, C.-H.*** "Highly Stretchable Free-Standing Poly(acrylic acid)-*block*-poly(vinyl alcohol) Films Obtained from Cobalt-Mediated Radical Polymerization" *Macromolecules* **2017,** *50*, 6054.
3. Chi, M.-H.; Su, C.-H.; Cheng, M.-H.; Chung, P.-Y.; **Peng, C.-H.***; Chen, J.-T.* "Shaping the Light: The Key Factors Affecting the Photophysical Properties of Fluorescent Polymer Nanostructures" *Macromol. Rapid Commun.* **2016,** *37*, 2037. (Cover page)
4. Wang, F.-S.; Yang, T.-Y.; Hsu, C.-C.; Chen,Y.-J.; Li, M.-H.; Hsu, Y.-J.; Chuang, M.-C.; **Peng, C.-H.*** "The Mechanism and Thermodynamic Studies of CMRP: Different Control Mechanisms Demonstrated by Co^{II}(TMP), Co^{II}(salen*), and $Co^{II}(acac)_2$ Mediated Polymerization and The Correlation of Reduction Potential, Equilibrium Constant, and Control Mechanism" *Macromol. Chem. Phys.* **2016,** *217*, 422. (Invited paper and Cover page for special issue of Young Talents in Polymer Science)
5. Chen,Y.-J.; Wu, B.-J.; Wang, F.-S.; Chi, M.-H.; Chen, J.-T.*; **Peng, C.-H.*** "Hybridization of CMRP and ATRP: A Direct Living Chain Extension from Poly(vinyl acetate) to Poly(methyl methacrylate) and Polystyrene" *Macromolecules* **2015,** *48(19)*, 6832.
6. Zhao, Y.; Yu, M.; Zhang, S.; Wu, Z.; Liu, Y.; **Peng, C.-H.***; Fu, X.* "A Well-defined Versatile Photoinitiator (salen)Co-CO_2CH_3 for Visible Light Initiated Living/Controlled Radical Polymerization" *Chem. Sci.* **2015,** *6*, 2979.
7. Hsieh, Y.-L.; Huang, N.; Lee, G.-H.; **Peng, C.-H.*** "Bipyridine-Phenolate Based Aluminum Complexes Mediated Ring-Opening Polymerization of ε-Caprolactone and Lactides with A High Stereoselectivity" *Polymer* **2015,** *72*, 281.
8. Hsieh, Y.-L.; Lin, Y.-C.; Lee, G.-H.; **Peng, C.-H.*** "Zinc Complexes Coordinated by Bipyridine-Phenolate Ligands as An Efficient Initiator for Ring-Opening Polymerization of Cyclic Esters" *Polymer* **2015,** *56*, 237.
9. Lin, Y.-C.; Hsieh, Y.-L.; Lin, Y.-D.; **Peng, C.-H.*** "Cobalt Bipyridine Bisphenolate Complex in Controlled/Living Radical Polymerization of Vinyl Monomers" *Macromolecules* **2014,** *47(21)*, 7362.
10. **Peng, C.-H.***; Yang, T.-Y.; Zhao, Y.; Fu, X.* "Reversible deactivation radical polymerization mediated by cobalt complexes: recent progress and perspectives" *Org. Biomol. Chem.* **2014**, *12*, 8580.
11. Hsu, C.-S.; Yang, T.-Y.; **Peng, C.-H.*** "Vinyl acetate living radical polymerization mediated by cobalt porphyrins: kinetic–mechanistic studies" *Polym. Chem.* **2014**, *5 (12)*, 3867.
12. Hsiao, C.-Y.; Han, H.-A.; Lee, G.-H.; **Peng, C.-H.*** "AGET and SARA ATRP of styrene and methyl methacrylate mediated by pyridyl-imine based copper complexes" *Eur. Polym. J.* **2014,** *51*, 12.
13. Liao, C.-M.; Hsu, C.-C.; Wang, F.-S.; Wayland, B. B.; **Peng, C.-H.*** "Living radical polymerization of vinyl acetate and methyl acrylate mediated by Co(Salen*) complexes" *Polym. Chem.* **2013**, *4*, 3098.

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14. Weng, J.-T.; Yeh, T.-F.; Samuel, A. Z.; Huang, Y.-F.; Sie, J.-H.; Wu, K.-Y.; **Peng**, **C.-H.**;

Hamaguchi, H.; Wang, C.-L. "Cylindrical micelles of a POSS amphiphilic dendrimer as nano-reactors for polymerization" *Nanoscale* **2018,** *10,* 3509.

15. Hung, L.-I.; Chen, P.-L.; Yang, J.-H.; **Peng, C.-H.**; Wang, S.-L. "Transition Metal Titanophosphates with Intercalated Molecular Photoluminescence and Catalytic Properties" *Chem. Eur. J.* **2017,** *23,* 13583.
16. Chi, M.-H.; Chang, C.-W.; Ko, H.-W.; Su, C.-H.; Lee, C.-W.; **Peng, C.-H.**; Chen, J.-T.* "Solvent-Induced Dewetting on Curved Substrates: Fabrication of Porous Polymer Nanotubes by Anodic Aluminum Oxide Templates" *Macromolecules* **2015,** *48(17),* 6241.
17. Zhao, Y.; Zhang, S.; Wu, Z.; Liu, X.; Zhao, X.; **Peng, C.-H.**; Fu, X.* "Visible-Light-Induced Living Radical Polymerization (LRP) Mediated by (salen)Co(II)/TPO at Ambient Temperature" *Macromolecules* **2015,** *48(15),* 5132.
18. Ko, H.-W.; Chi, M.-H.; Chang, C.-W.; Su, C.-H.; Wei, T.-H.; Tsai, C.-C.; **Peng, C.-H.**; Chen, J.-T.* "Fabrication of Multicomponent Polymer Nanostructures Containing PMMA Shells and Encapsulated PS Nanospheres in the Nanopores of Anodic Aluminum Oxide Templates" *Macromol. Rapid Commun.* **2015,** *36,* 439.
19. Wang, Y.; Zhong, M.; Zhu, W.; **Peng, C.-H**.; Zhang, Y.; Konkolewicz, D.; Bortolamei, N.; Isse, A. A.; Gennaro, A.; Matyjaszewski, K.* "Reversible-Deactivation Radical Polymerization in the Presence of Metallic Copper. Comproportionation–Disproportionation Equilibria and Kinetics" *Macromolecules* **2013**, *46,* 3793.
20. **Peng, C.-H**.; Zhong, M.; Wang, Y.; Kwak, Y.; Zhang, Y.; Zhu, W.; Tonge, M.; Buback, J.; Park, S.; Krys, P.; Konkolewicz, D.; Gennaro, A.; Matyjaszewski, K.* "Reversible-Deactivation Radical Polymerization in the Presence of Metallic Copper. Activation of Alkyl Halides by Cu(0)" *Macromolecules* **2013**, 46, 3803.
21. Zhang, Y.; Wang, Y.; **Peng, C.-H.**; Zhong, M.; Zhu, W.; Konkolewicz, D.; Matyjaszewski, K.* "Copper-Mediated CRP of Methyl Acrylate in the Presence of Metallic Copper: Effect of Ligand Structure on Reaction Kinetics" *Macromolecules* **2012,** *45,* 78.

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22. **Peng, C.-H.**; Kong, J.; Seeliger, F.; Matyjaszewski, K. "Mechanism of Halogen Exchange in ATRP" *Macromolecules* **2011**, *44,* 7546-7557.
23. **Peng, C.-H.**; Li, S.; Wayland, B. B. "Formation and Interconversion of Organo-Cobalt Complexes in Reactions of Cobalt(II) Porphyrins with Cyanoalkyl Radicals and Vinyl Olefins" *Inorg. Chem.* **2009,** *48,* 5039-5046.
24. **Peng, C.-H.**; Li, S.; Wayland, B. B. "Aspects of Living Radical Polymerization Mediated by Cobalt Porphyrin Complexes" *J. Chin. Chem. Soc.* **2009,** *56(2),* 219-233.
25. Li, S.; de Bruin, B.; **Peng, C.-H.**; Fryd, M.; Wayland, B. B.* "Exchange of Organic Radicals with Organo-Cobalt Complexes Formed in the Living Radical Polymerization of Vinyl Acetate" *J. Am. Chem. Soc.* **2008,** *130,* 13373-13381.
26. **Peng, C.-H.**; Scricco, J.; Li, S.; Fryd, M.; Wayland, B. B.* "Organo-Cobalt Mediated Living Radical Polymerization of Vinyl Acetate" *Macromolecules* **2008,** *41,* 2368-2373.
27. **Peng, C.-H.**; Fryd, M.; Wayland, B. B.* "Organocobalt Mediated Radical Polymerization of Acrylic Acid in Water" *Macromolecules* **2007,** *40,* 6814-6819.
28. Wayland, B. B.*; **Peng, C.-H.**; Fu, X.; Lu, Z.; Fryd, M. "Degenerative Transfer and Reversible Termination Mechanisms for Living Radical Polymerizations Mediated by Cobalt Porphyrins" *Macromolecules* **2006,** *39,* 8219-8222.
29. **Peng, C.-H.**; Wang, C. -C.; Lee, H. -C.; Lo, W. -C.; Lee, G. -H.; Peng, S. -M.* " Two Polymeric Linear Tri-nickel(II) Complexes: $[Ni_3(\mu_3\text{-dpa})_4(C_4O_4Me)]_n(BF_4)_n$ and $[Ni_3(\mu_3\text{-dpa})_4(N_3)]_n(PF_6)_n$ Synthesis, Structural Characterization and Magnetic Properties " *J. Chin. Chem. Soc.* **2001**, *48,* 987-996.

Book Chapter

1. Chen, Y.-H.; Lu, H.-H.; Li, J.-Q.; **Peng, C.-H.*** "Catalytic chain transfer polymerization and reversible deactivation radical polymerization of vinyl acetate mediated by cobalt(II) phenoxy-imine complexes" *ACS Symp. Ser.* **2018,** *1284,* 335.
2. **Peng, C.-H.**; Li, S.; Wayland, B. B. "Formation, Dissociation, and Radical Exchange of Organo-Cobalt Complexes in Mediating Living Radical Polymerization" *ACS Symp. Ser.* **2009,** *1024,* 115.
3. Wayland, B. B.*; Fu, X.; **Peng, C.-H.**; Lu, Z.; Fryd, M. "Living radical polymerizations mediated by metallo-radical and organo-transition metal complexes" *ACS Symp. Ser.* **2006,** *944,* 358.

Other Publictions

1. **Peng, C.-H.**; Zhong, M.; Wang, Y.; Zhang, Y.; Konkolewicz, D.; Magenau, A. J. D.; Matyjaszewski, K. "Supplemental Activator and Reducing Agent: The True Role of Copper(0) in ATRP" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2011,** *52(2),* 586-587.
2. **Peng, C.-H.**; Li, S.; Wayland, B. B. "Formation, Dissociation, and Radical Exchange of Organo-Cobalt Complexes in Mediating Living Radical Polymerization of Vinyl Monomers" *Polym. Prepr. (IUPAC MACRO 2008)* **2008**.
3. Wayland, B. B.; Li, S.; **Peng, C.-H.**; Fryd, M. "Formation, Dissociation, and Radical Exchange of Organo-Cobalt Complexes in Mediating Living Radical Polymerization of Vinyl Monomers" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2008,** *49(2),* 123-124.
4. **Peng, C.-H.**; Wayland, B. B.* "Cobalt porphyrin mediated living radical polymerization of acrylic acid in water" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2007,** *48,* 254.
5. **Peng, C.-H.**; Scricco, J.; Fu, X.; Fryd, M.; Wayland, B. B.* "Living radical polymerization of acrylic acid and vinyl acetate mediated by organo-cobalt porphyrin complexes" *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2006,** *47,* 543.