Curriculum Vitae

Chia-Kuang Tsung

Associate Professor of Chemistry
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EDUCATION

- **Ph.D.** in Chemistry (September 2002 - September 2007)
  Prof. Galen D. Stucky, University of California
- **B.S.** in Chemistry (September 1995 - June 1999)
  National Sun Yat-sen University

RESEARCH EXPERIENCE

Associate Professor of Chemistry [2017-Present]
Boston College, Department of Chemistry

Assistant Professor of Chemistry [2010-2017]
Boston College, Department of Chemistry

Postdoctoral Fellow - Prof. Gabor A. Somorjai and **Prof. Peidong Yang** [2007-2010]
University of California, Berkeley, Department of Chemistry, and Lawrence Berkeley National Laboratory

Graduate Student Researcher - Prof. Galen D. Stucky [2002-2007]
University of California, Santa Barbara, Department of Chemistry and Biochemistry

TEACHING

Boston College, Department of Chemistry

- Instructor for CH 110 General Chemistry I & II [2015, 2016, 2017, 2019]
- Instructor for CH 575 Physical Chemistry II (Quantum Chemistry) [2012, 2013]
- Instructor for CH 676 Advanced Physical Chemistry [2010, 2011, 2012, 2013]

PUBLICATIONS

Total citation: 6670, h-index: 44 (2019/01/01).

Boston College (* denotes corresponding author)

68. Liu, X. Y.; Zhang, F. R.; Goh, T. W.; Li, Y.; Shao, Y. C.; Luo, L. S.; Huang, W. Y.; Long, Y. T.; Chou, L. Y.*; **Tsung, C.-K.***, Using a Multi-Shelled Hollow Metal-Organic Framework as a Host to Switch the Guest-to-Host and Guest-to-Guest Interactions. *Angew. Chem.-Int. Edit.* **2018,** *57* (8), 2110-2114.
67. Li, Z. H.; Rayder, T. M.; Luo, L. S.; Byers, J. A.*; **Tsung, C.-K.***, Aperture-Opening Encapsulation of a Transition Metal Catalyst in a Metal-Organic Framework for CO2 Hydrogenation. *J. Am. Chem. Soc.* **2018,** *140* (26), 8082-8085.
66. Lee, H. K.; Koh, C. S. L.; Lee, Y. H.; Liu, C.; Phang, I. Y.; Han, X. M.; **Tsung, C.-K.**; Ling, X. Y.*, Favoring the unfavored: Selective electrochemical nitrogen fixation using a reticular chemistry approach. *Sci. Adv.* **2018,** *4* (3).
65. Limvorapitux, R.; Chou, L. Y.; Young, A. P.; **Tsung, C.-K.***; Nguyen, S. T.*, Coupling Molecular and Nanoparticle Catalysts on Single Metal-Organic Framework Microcrystals for the Tandem Reaction of H2O2 Generation and Selective Alkene Oxidation. *ACS Catal.* **2017,** *7* (10), 6691-6698.
64. Lee, H. K.; Lee, Y. H.; Liu, Y.; Morabito, J. V.; Phang, I. Y.; Pedireddy, S.; Koh, C. S. L.; Han, X.; Chou, L.-Y.; **Tsung, C.-K.***; Ling, X. Y.*, Driving CO2 to a Quasi-Condensed Phase at the Interface between a Nanoparticle Surface and a Metal-Organic Framework at 1 bar and 298 K. *J. Am. Chem. Soc.* **2017**, *139*, 11513.
63. Kaneti, Y. V.; Dutta, S.; Hossain, M. S. A.; Shiddiky, M. J. A.; Tung, K.-L.; Shieh, F.-K.; **Tsung, C.-K.**; Wu,

K. C. W.*; Yamauchi, Y.*, Strategies for Improving the Functionality of Zeolitic Imidazolate Frameworks: Tailoring Nanoarchitectures for Functional Applications. *Advanced Materials* **2017,** *29* (38), 1700213.

62. Zhuang, J.; Young, A. P.; **Tsung, C.-K.*,** Integration of Biomolecules with Metal–Organic Frameworks. *Small* **2017**, 13, 1700880.
61. Liao, F.; Lo, W., Hsu, Y.; Wu, C.; Wang, S. Shieh, F.; Morabito, J. V.; Chou, L.; Wu, C.; **Tsung, C.-K.***, Shielding Against Unfolding by Embedding Enzymes in Metal-Organic Frameworks via a de novo Approach. *J. Am. Chem. Soc.* **2017**, *139*, 6530.
60. Giustra, Z. X.; Chou, L. Y.; **Tsung, C.-K.***; Liu, S. Y.*, Kinetics of -CH2CH2- Hydrogen Release from a BN-cyclohexene Derivative. *Organometallics* **2016**, 35, 2425.
59. Sneed, B. T.; Golden, M. C.; Liu, Y.; Lee, H. K.; Andoni, I.; Young, A. P.; McMahon, G.; Erdman, N.; Shibata, M.; Ling, X. Y.; **Tsung, C.-K.***, Promotion of the halide effect in the formation of shaped metal nanocrystals via a hybrid cationic, polymeric stabilizer: Octahedra, cubes, and anisotropic growth. *Surf. Sci.***2016**, *648*, 307.
58. Sheehan, M. K.; Rudden, M.; Cai, H.; **Tsung, C.-K.***, Carbon Coated Metal Nanoparticles for Electrocatalysis. *Catal. Lett.* **2016**, *2*, 309.
57. Chou, L.-Y.; Hu, P.; Zhuang, J.; Morabito, J. V.; Ng, K. C.; Kao, Y.-C.; Wang, S.-C.; Shieh, F.-K.; Kuo, C.-H.; **Tsung, C.-K.***, Formation of hollow and mesoporous structures in single-crystalline microcrystals of metal-organic frameworks via double-solvent mediated overgrowth, *Nanoscale* **2015**, *7*, 19408.
56. Zhuang, J; Chou, L.; Sneed, B. T.; Cao, Y.; Hu, P.; Feng, L.; **Tsung, C.-K.***, Surfactant-Mediated Conformal Overgrowth of Core-Shell Metal-Organic Framework Materials with Mismatched Topologies, *Small* **2015**, *11*, 5551.
55. Sneed, B. T.; Young, A. P.; **Tsung, C.-K.***, Building up strain in colloidal metal nanoparticle catalysts, *Nanoscale* **2015**, *7*, 12248.
54. Scardi, P.*; Leonardi, A.; Gelisio, L.; Suchomel, M. R.; Sneed, B. T.; Sheehan, M. K.; **Tsung, C.-K.**, Anisotropic atom displacement in Pd nanocubes resolved by molecular dynamics simulations supported by x-ray diffraction imaging. *Phys. Rev. B* **2015,** *91,* 155414.
53. Yuan, W.; Jiang, Y.; Wang, Y.*; Kattel, S.; Zhang, Z.; Chou, L.-Y.; **Tsung, C.-K.**; Wei, X.; Li, J.; Zhang, X.; Wang, G.*; Mao, S. X.; Zhang, Z., In situ observation of facet-dependent oxidation of graphene on platinum in an environmental TEM. *Chem. Comm.* **2015,** *51,* 350.
52. Shieh, F.-K.*; Wang, S.-C.; Yen, C.-I.; Wu, C.-C.; Dutta, S.; Chou, L.-Y.; Morabito, J. V.; Hu, P.; Hsu, M.-H.; Wu, K. C. W.*; **Tsung, C.-K.***, Imparting Functionality to Biocatalysts via Embedding Enzymes into Nanoporous Materials by a de novo Approach: Size-Selective Sheltering of Catalase in Metal-Organic Framework Microcrystals. *J. Am. Chem. Soc.* **2015**, *137* , 4276.
51. Hu, P.; Morabito, J. V.; **Tsung, C.-K.***, Core-shell catalysts of metal nanoparticle core and metal-organic-framework shell. *ACS Catalysis* **2014**, *4*, 4409.
50. Hong, D.; Yamada, Y.; Sheehan, M.; Shikano, S.; Kuo, C.-H.; Ming, T.; **Tsung, C.-K.***; Fukuzumi, S.*, Mesoporous Nickel Ferrites with Spinel Structure Prepared by an Aerosol-Spray-Pyrolysis Method for Photocatalytic Hydrogen Evolution. *ACS Sustainable Chemistry & Engineering* **2014**, *2*, 2588.
49. Brodsky, C.N.; Young, A.P.; Ng, C.H.; Kuo, C.H.; **Tsung, C.-K.** *, Electrochemically Induced Surface Metal Migration in Well-Defined Core-Shell Nanoparticles and Its General Influence on Electrocatalytic Reactions. *ACS Nano* **2014**, *8*, 9368.
48. Morabito, J.V.; Chou, L.Y.; Li, Z.; Manna, C.M.; Petroff, C.A.; Kyada, R.; Palomba, J.M.; Byers, J.A.; **Tsung, C.-K. *,** Molecular Encapsulation Beyond the Aperture Size Limit Through Dissociative Linker Exchange in Metal-Organic Framework Crystals. *J. Am. Chem. Soc.* **2014.** *136*, 12540.
47. Hu, P.; Zhuang, J.; Chou, L.-Y.; Lee, H. K.; Ling, X. Y.; Chuang, Y.-C.; **Tsung, C.-K. *,** Surfactant-Directed Atomic to Mesoscale Alignment: Metal Nanocrystals Encased Individually in Single-Crystalline Porous Nanostructures. *J. Am. Chem. Soc.* **2014**, *136*, 10561.
46. Sneed, B. T.; Young, A. P.; Jalalpoor, D.; Golden, M. C.; Mao, S.; Jiang, Y.; Wang, Y.; **Tsung, C.-K.***, Shaped Pd–Ni–Pt Core-Sandwich-Shell Nanoparticles: Influence of Ni Sandwich Layers on Catalytic Electrooxidations. *Acs Nano.* **2014**, *8,* 7239.
45. Xie, J.; Yao, X.; Madden, I. P.; Jiang, D.-E.; Chou, L.-Y.; **Tsung, C.-K.**; Wang, D. *, Selective Deposition of Ru Nanoparticles on TiSi2 Nanonet and Its Utilization for Li2O2 Formation and Decomposition. *J. Am. Chem. Soc.* **2014**, *136*, 8903.

44. Zhuang, J.; Kuo, C. H.; Chou, L. Y.; Liu, D. Y.; Weerapana, E.*; **Tsung, C.-K.** *, Optimized Metal-Organic-Framework Nanospheres for Drug Delivery: Evaluation of Small-Molecule Encapsulation. *Acs Nano.* **2014**, *8*, 2812.

43. Sun, X. L.; Dai, R.; Chen, J. J.; Zhou, W.; Wang, T. Y.; Kost, A. R.; **Tsung, C.-K.**; An, Z. S.*, Enhanced thermal stability of oleic-acid-capped PbS quantum dot optical fiber amplifier. *Optics Express.* **2014**, *22*, 519.

42. Jiang, Y.; Wang, Y.*; Zhang, Y. Y.; Zhang, Z. F.; Yuan, W. T.; Sun, C. H.; Wei, X.; Brodsky, C. N.; **Tsung, C.-K.**; Li, J. X.; Zhang, X. F.; Mao, S. X.; Zhang, S. B.*; Zhang, Z.*, Direct observation of Pt nanocrystal coalescence induced by electron-excitation-enhanced van der Waals interactions. *Nano Res.* **2014**, *7*, 308.

41. Shieh, F.-K.*; Hsiao, C.-T.; Kao, H.-M.; Sue, Y.-C.; Lin, K.-W.; Wu, C.-C.; Chen, X.-H.; Wan, L.; Hsu, M.-H.; Hwu, J. R.; **Tsung, C.-K.**; Wu, K. C. W.*, Size-adjustable annular ring-functionalized mesoporous silica as effective and selective adsorbents for heavy metal ions. *RSC Advances.* **2013**, *3*, 25686.

40. Sneed, B. T.; Brodsky, C. N.; Kuo, C. H.; Lamontagne L. K.; Jiang, Y.; Wang, Y.; **Tsung, C.-K.***, Nanoscale-Phase-Separated Pd-Rh Boxes Synthesized via Metal Migration: An Archetype for Studying Lattice Strain Effects in Catalysis. *J. Am. Chem. Soc.* **2013**, *135*, 14691.

39. Kuo, C. H.; Lamontagne, L. K.; Brodsky, C. N.; Chou, L. Y.; Zhuang, J.; Sneed, B. T.; Sheehan, M. K.; **Tsung, C.-K.***, The Effect of Lattice Strain on the Catalytic Properties of Pd Nanocrystals. *ChemSusChem.* **2013**, *6*, 1993.

38. Zhang, S.; Nguyen, L.; Zhu, Y.; Zhan, S.; **Tsung, C.-K.***; Tao, F.*, In-Situ Studies of Nanocatalysis. *Accounts Chem. Res.* **2013**, *46*, 1731.

37. Baldyga, L. M.; Blavo, S. O.; Kuo, C. H.; **Tsung, C.-K.**; Kuhn, J. N.*, Size-Dependent Sulfur Poisoning of Silica-Supported Monodisperse Pt Nanoparticle Hydrogenation Catalysts. *ACS Catalysis* **2012,** *2*, 2626.

36. Sneed, B. T.; Kuo, C. H.; Brodsky, C. N.; **Tsung, C.-K.***, Iodide-Mediated Control of Rhodium Epitaxial Growth on Well-Defined Noble Metal Nanocrystals: Synthesis, Characterization, and Structure-Dependent Catalytic Properties. *J. Am. Chem. Soc.* **2012,** *134*, 18417.

35. Kuo, C. H.; Tang, Y.; Chou, L. Y.; Sneed, B. T.; Brodsky, C. N.; Zhao, Z. P.; **Tsung, C.-K.***, Yolk-Shell Nanocrystal@ZIF-8 Nanostructures for Gas-Phase Heterogeneous Catalysis with Selectivity Control. *J. Am. Chem. Soc.* **2012,** *134*, 14345.

Before independent work

34. Yamada, Y.; **Tsung, C.-K.**; Huang, W.; Huo, Z. Y.; Habas, S. E.; Soejima, T.; Aliaga, C. E.; Somorjai, G. A.; Yang, P. D., Nanocrystal bilayer for tandem catalysis. *Nat. Chem.* **2011,** *3* (5), 372.

33. Huang, Y.; Shi, Q. H.; **Tsung, C.-K.**; Gunawardena, H. P.; Xie, L.; Yu, Y. B.; Liang, H. J.; Yang, P. Y.; Stucky, G. D.; Chen, X. A., An optimized magnetite microparticle-based phosphopeptide enrichment strategy for identifying multiple phosphorylation sites in an immunoprecipitated protein. *Anal. Biochem.* **2011,** *409* (2), 301.

32. Feng, L.; Hoang, D. T.; **Tsung, C.-K.**; Huang, W. Y.; Lo, S. H. Y.; Wood, J. B.; Wang, H. T.; Tang, J. Y.; Yang, P. D., Catalytic Properties of Pt Cluster-Decorated CeO2 Nanostructures. *Nano Res.* **2011,** *4* (1), 61.

31. Aliaga, C.; **Tsung, C.-K.**; Alayoglu, S.; Komvopoulos, K.; Yang, P. D.; Somorjai, G. A., Sum Frequency Generation Vibrational Spectroscopy and Kinetic Study of 2-Methylfuran and 2,5-Dimethylfuran Hydrogenation over 7 nm Platinum Cubic Nanoparticles. *J. Phys. Chem. C* **2011,** *115* (16), 8104.

30. Witham, C. A.; Huang, W. Y.; **Tsung, C.-K.**; Kuhn, J. N.; Somorjai, G. A.; Toste, F. D., Converting homogeneous to heterogeneous in electrophilic catalysis using monodisperse metal nanoparticles. *Nat. Chem.* **2010,** *2* (1), 36.

29. Tao, F.; Grass, M. E.; Zhang, Y. W.; Butcher, D. R.; Aksoy, F.; Aloni, S.; Altoe, V.; Alayoglu, S.; Renzas, J. R.; **Tsung, C.-K.**; Zhu, Z. W.; Liu, Z.; Salmeron, M.; Somorjai, G. A., Evolution of Structure and Chemistry of Bimetallic Nanoparticle Catalysts under Reaction Conditions. *J. Am. Chem. Soc.* **2010,** *132* (25), 8697.

28. Kliewer, C. J.; Aliaga, C.; Bieri, M.; Huang, W. Y.; **Tsung, C.-K.**; Wood, J. B.; Komvopoulos, K.; Somorjai, G. A., Furan Hydrogenation over Pt(111) and Pt(100) Single-Crystal Surfaces and Pt Nanoparticles from 1 to 7 nm: A Kinetic and Sum Frequency Generation Vibrational Spectroscopy Study. *J. Am. Chem. Soc.* **2010,** *132* (37), 13088.

27. Hung, L. I.; **Tsung, C.-K. (Equal Contribution)**; Huang, W. Y.; Yang, P. D., Room-Temperature Formation of Hollow Cu2O Nanoparticles. *Adv. Mater.* **2010,** *22* (17), 1910.

26. Huang, W. Y.; Liu, J. H. C.; Alayoglu, P.; Li, Y. M.; Witham, C. A.; **Tsung, C.-K.**; Toste, F. D.; Somorjai, G.

A., Highly Active Heterogeneous Palladium Nanoparticle Catalysts for Homogeneous Electrophilic Reactions in Solution and the Utilization of a Continuous Flow Reactor. *J. Am. Chem. Soc.* **2010,** *132* (47), 16771.

25. **Tsung, C.-K.**; Kuhn, J. N.; Huang, W. Y.; Aliaga, C.; Hung, L. I.; Somorjai, G. A.; Yang, P. D., Sub-10 nm Platinum Nanocrystals with Size and Shape Control: Catalytic Study for Ethylene and Pyrrole Hydrogenation. *J. Am. Chem. Soc.* **2009,** *131* (16), 5816.
24. Kuhn, J. N.; **Tsung, C.-K. (Equal Contribution)**; Huang, W.; Somorjai, G. A., Effect of organic capping layers over monodisperse platinum nanoparticles upon activity for ethylene hydrogenation and carbon monoxide oxidation. *J. Catal.* **2009,** *265* (2), 209.
23. Joo, S. H.; Park, J. Y.; **Tsung, C.-K.**; Yamada, Y.; Yang, P. D.; Somorjai, G. A., Thermally stable Pt/mesoporous silica core-shell nanocatalysts for high-temperature reactions. *Nat. Mater.* **2009,** *8* (2), 126.
22. Huo, Z. Y.; **Tsung, C.-K.**; Huang, W. Y.; Fardy, M.; Yan, R. X.; Zhang, X. F.; Li, Y. D.; Yang, P. D., Self-Organized Ultrathin Oxide Nanocrystals. *Nano Lett.* **2009,** *9* (3), 1260.
21. Aliaga, C.; Park, J. Y.; Yamada, Y.; Lee, H. S.; **Tsung, C.-K.**; Yang, P. D.; Somorjai, G. A., Sum Frequency Generation and Catalytic Reaction Studies of the Removal of Organic Capping Agents from Pt Nanoparticles by UV-Ozone Treatment. *J. Phys. Chem. C* **2009,** *113* (15), 6150.
20. **Tsung, C.-K.**; Fan, J.; Zheng, N. F.; Shi, Q. H.; Forman, A. J.; Wang, J. F.; Stucky, G. D., A General Route to Diverse Mesoporous Metal Oxide Submicrospheres with Highly Crystalline Frameworks. *Angew. Chem.-Int. Edit.* **2008,** *47* (45), 8682.
19. Li, L.; **Tsung, C.-K.**; Yang, Z.; Stucky, G. D.; Sun, L. D.; Wang, J. F.; Yan, C. H., Rare-earth-doped nanocrystalline Titania microspheres emitting luminescence via energy transfer. *Adv. Mater.* **2008,** *20* (5), 903.
18. Li, L.; **Tsung, C.-K.**; Ming, T.; Sun, Z. H.; Ni, W. H.; Shi, Q. H.; Stucky, G. D.; Wang, J. F., Multifunctional Mesostructured Silica Microspheres from an Ultrasonic Aerosol Spray. *Adv. Funct. Mater.* **2008,** *18* (19), 2956.
17. Kuhn, J. N.; Huang, W. Y.; **Tsung, C.-K.**; Zhang, Y. W.; Somorjai, G. A., Structure Sensitivity of Carbon-Nitrogen Ring Opening: Impact of Platinum Particle Size from below 1 to 5 nm upon Pyrrole Hydrogenation Product Selectivity over Monodisperse Platinum Nanoparticles Loaded onto Mesoporous Silica. *J. Am. Chem. Soc.* **2008,** *130* (43), 14026.
16. Huo, Z. Y.; **Tsung, C.-K.**; Huang, W. Y.; Zhang, X. F.; Yang, P. D., Sub-two nanometer single crystal Au nanowires. *Nano Lett.* **2008,** *8* (7), 2041.
15. Huang, W.; Kuhn, J. N.; **Tsung, C.-K.**; Zhang, Y.; Habas, S. E.; Yang, P.; Somorjai, G. A., Dendrimer templated synthesis of one nanometer Rh and Pt particles supported on mesoporous silica: Catalytic activity for ethylene and pyrrole hydrogenation. *Nano Lett.* **2008,** *8* (7), 2027.
14. Galusha, J. W.; **Tsung, C.-K. (Equal Contribution)**; Stucky, G. D.; Bartl, M. H., Optimizing sol-gel infiltration and processing methods for the fabrication of high-quality planar Titania inverse opals. *Chem. Mat.* **2008,** *20* (15), 4925.
13. Fan, J.; Boettcher, S. W.; **Tsung, C.-K.**; Shi, Q.; Schierhorn, M.; Stucky, G. D., Field-directed and confined molecular assembly of mesostructured materials: Basic principles and new opportunities. *Chem. Mat.* **2008,** *20* (3), 909.
12. Shi, Q. H.; An, Z. S.; **Tsung, C.-K.**; Liang, H. J.; Zheng, N. F.; Hawker, C. J.; Stucky, G. D., Ice-templating of core/shell microgel fibers through 'Bricks-and-Mortar' assembly. *Adv. Mater.* **2007,** *19* (24), 4539.
11. Kou, X. S.; Zhang, S. Z.; Yang, Z.; **Tsung, C.-K.**; Stucky, G. D.; Sun, L. D.; Wang, J. F.; Yan, C. H., Glutathione- and cysteine-induced transverse overgrowth on gold nanorods. *J. Am. Chem. Soc.* **2007,** *129* (20), 6402.
10. Kou, X. S.; Zhang, S. Z.; **Tsung, C.-K.**; Yang, Z.; Yeung, M. H.; Stucky, G. D.; Sun, L. D.; Wang, J. F.; Yan, C. H., One-step synthesis of large-aspect-ratio single-crystalline gold nanorods by using CTPAB and CTBAB surfactants. *Chem.-Eur. J.* **2007,** *13* (10), 2929.
9. Kou, X. S.; Ni, W. H.; **Tsung, C.-K.**; Chan, K.; Lin, H. Q.; Stucky, G. D.; Wang, J. F., Growth of gold bipyramids with improved yield and their curvature-directed oxidation. *Small* **2007,** *3* (12), 2103.
8. Boettcher, S. W.; Fan, J.; **Tsung, C.-K.**; Shi, Q. H.; Stucky, G. D., Harnessing the sol-gel process for the assembly of non-silicate mesostructured oxide materials. *Accounts Chem. Res.* **2007,** *40* (9), 784.

7. An, Z. S.; Shi, Q. H.; Tang, W.; **Tsung, C.-K.**; Hawker, C. J.; Stucky, G. D., Facile RAFT precipitation polymerization for the microwave-assisted synthesis of well-defined, double hydrophilic block copolymers and nanostructured hydrogels. *J. Am. Chem. Soc.* **2007,** *129* (46), 14493.
6. **Tsung, C.-K.**; Kou, X. S.; Shi, Q. H.; Zhang, J. P.; Yeung, M. H.; Wang, J. F.; Stucky, G. D., Selective shortening of single-crystalline gold nanorods by mild oxidation. *J. Am. Chem. Soc.* **2006,** *128* (16), 5352.
5. **Tsung, C.-K.**; Hong, W. B.; Shi, Q. H.; Kou, X. S.; Yeung, M. H.; Wang, J. F.; Stucky, G. D., Shape- and orientation-controlled gold nanoparticles formed within mesoporous silica nanofibers. *Adv. Funct. Mater.* **2006,** *16* (17), 2225.
4. Ostomel, T. A.; Shi, Q. H.; **Tsung, C.-K.**; Liang, H. J.; Stucky, G. D., Spherical bioactive glass with enhanced rates of hydroxyapatite deposition and hemostatic activity. *Small* **2006,** *2* (11), 1261.
3. Kou, X. S.; Zhang, S. Z.; **Tsung, C.-K.**; Yeung, M. H.; Shi, Q. H.; Stucky, G. D.; Sun, L. D.; Wang, J. F.; Yan, C. H., Growth of gold nanorods and bipyramids using CTEAB surfactant. *J. Phys. Chem. B* **2006,** *110* (33), 16377.
2. Wang, J. F.; **Tsung, C.-K.**; Hayward, R. C.; Wu, Y. Y.; Stucky, G. D., Single-crystal mesoporous silica ribbons. *Angew. Chem.-Int. Edit.* **2005,** *44* (2), 332.
1. Wang, J. F.; **Tsung, C.-K.**; Hong, W. B.; Wu, Y. Y.; Tang, J.; Stucky, G. D., Synthesis of mesoporous silica nanofibers with controlled pore architectures. *Chem. Mat.* **2004,** *16* (24), 5169.

LECTURES

59. **Tsung, C.-K.,** "Embedding enzymes into metal-organic frameworks via a de novo approach", invited talk, ACS Meeting, August, 2018.
58. **Tsung, C.-K.,** "Metal-Organic Framework Nanospheres for Smart Drug Delivery", invited talk, ACS Meeting, August, 2018.
57. **Tsung, C.-K.,** "Controlling Small Molecules at the Interface between Nanoparticles and Metal–Organic Frameworks", invited talk, ACS Meeting, August, 2018.
56. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Nanoporous Materials" invited talk, Gordon Research Conference - Nanoporous Materials & Their Applications, August, 2017.
55. **Tsung, C.-K.,** "Controlled Encapsulation of Guests into Metal-Organic Frameworks", invited talk, ACS, April, 2017.
55. **Tsung, C.-K.,** "Controlled Encapsulation of Guests into Metal-Organic Frameworks", invited talk, ACS, April, 2017.
54. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Metal-Organic Frameworks", invited talk, MOF2016 Conference, September, 2016.
53. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, University of Connecticut, September, 2016.
52. **Tsung, C.-K.,** "Crystal Structure Alignment in Core-Shell Nanoparticles", invited talk, Gordon Research Conference - Noble Metal Nanoparticles, June, 2016.
51. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, University of North Texas, April, 2016.
50. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, Texas A&M University, April, 2016.
49. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, The University of Maryland, April, 2016.
48. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, University of Chicago, March, 2016.
47. **Tsung, C.-K.,** "Encapsulation of Catalysts in Nanoporous Materials", invited talk, Georgia Institute of Technology, February, 2016.

46. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Nanoporous Materials", invited talk, ShanghaiTech University, December, 2015.

45. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Nanoporous Materials", invited talk, Stanford University, December, 2015.

44. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Nanoporous Materials", invited talk, Tufts University, November, 2015.

43. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Nanoporous Materials", invited talk, Northwestern University, November, 2015.

42. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Metal-Organic Frameworks", invited talk, Arizona State University, October, 2015.

41. **Tsung, C.-K.,** "Controlled Encapsulation of Catalysts in Metal-Organic Frameworks", invited talk, University of New Hampshire, June, 2015.

40. **Tsung, C.-K.,** "Nanopore Controlled Catalysis: Syntheses of Core-Shell MOF Catalysts", invited talk, Brown University, August, 2015.

39. **Tsung, C.-K.,** "Nanopore Controlled Catalysis: Syntheses of Core-Shell MOF Catalysts", invited talk, University of South Florida, August, 2015.

38. **Tsung, C.-K.,** "Syntheses of Core-Shell MOF Catalysts", invited talk, National Taiwan University, June, 2015.

37. **Tsung, C.-K.,** "Mesoporous Metal Oxides Prepared by a Spray-Pyrolysis Method for Photocatalytic Hydrogen Evolution", invited talk, ACS National Meeting, April, 2015.

36. **Tsung, C.-K.,** "Metal-Organic Framework Coated Catalysts", invited talk, 10th International Symposium for Chinese Inorganic Chemists, September, 2014.

35. **Tsung, C.-K.,** "Metal-Organic Framework Coated Nanoparticles", invited talk, Utah University, September, 2014.

34. **Tsung, C.-K.,** "Metal-Organic Framework Coated Nanoparticles: A New Way to Control Heterogeneous Catalysis", invited talk, UC Berkeley, September, 2014.

33. **Tsung, C.-K.,** "Shaped Core-Sandwich-Shell Nanoparticles: Synthesis and Influence of Sandwich Layers on Electrooxidation", invited talk, 248th ACS National Meeting, August, 2014.

32. **Tsung, C.-K.,** "A general route to diverse mesoporous metal oxide spheres", invited talk, 248th ACS National Meeting, August, 2014.

31. **Tsung, C.-K.,** "Metal-Organic Framework Controlled Catalysis: Synthesis of Well-defined Active Cages", invited talk, 248th ACS National Meeting, August, 2014.

30. **Tsung, C.-K.,** "Core-Shell Nanoparticles: The Molecular-Level Design of Active Sites in Heterogeneous Catalysts", poster presentation and discussion leader at GRC - Noble Metal Nanoparticles, June, 2014.

29. **Tsung, C.-K.,** "The effect of surface lattice strain in reactions catalyzed by core-shell nanoparticles", invited talk at Iowa State University, February, 2014.

28. **Tsung, C.-K.,** "The effect of surface lattice strain in electrochemical oxidation catalyzed by Au-PdPt core-shell nanoparticles", invited oral presentation, ACS, Indianapolis, IN, August, 2013.

27. **Tsung, C.-K.,** "Lattice-Governed Electrochemical catalysis: Pd-Rh Nanoboxes Synthesized via Control of Metal Migration", oral presentation, ACS, Indianapolis, IN, August, 2013.

26. **Tsung, C.-K.,** "Nanopore-governed heterogeneous catalysis: designing selective reaction cavities on metal surfaces", oral presentation, ACS, Indianapolis, IN, August, 2013.

25. **Tsung, C.-K.,** "Encapsulation of Small Molecules and Nanoparticles in MOFs for Drug Delivery and Catalysis", poster presentation and discussion leader at GRC - Nanoporous Materials & Their Applications, August, 2013.

24. **Tsung, C.-K.,** "Nanopore Modulated Catalytic Chemistry, invited talk at 8th Sino-US Nano Forum, June,

2013.

23. **Tsung, C.-K., "**Atomic-Level Design of Heterogeneous Catalysts", invited talk at University of Trento, Italy April, 2013.

22. **Tsung, C.-K., "**Iodide-mediated control of rhodium epitaxial growth on well-defined noble metal nanocrystals: Synthesis, characterization, and structure-dependent catalytic properties", oral presentation, ACS, New Orleans, April, 2013.

21. **Tsung, C.-K., "**Core-shell and yolk-shell nanocrystal@MOF nanostructures for gas phase heterogeneous catalysis with selectivity control", oral presentation, ACS, New Orleans, April, 2013.

20. **Tsung, C.-K., "**Atomic-Level Design of Heterogeneous Catalysis by Using Colloidal Chemistry Synthesis" invited talk at Osaka University, Japan, March 2013.

19. **Tsung, C.-K., "**Rational design of heterogeneous catalysts by using colloidal synthesis", invited talk at UniCat Colloquium (Technische Universität Berlin, Department of Chemistry), Dec 2012.

18. **Tsung, C.-K.,** "Octahedral PdPt Alloy and Au@Pd, Au@PdPt Core-Shell NPs for Electrochemical Energy", poster presentation at GRC - Noble Metal Nanoparticles, June 2012.

17. **Tsung, C.-K.,** "Nanopore Modulated Catalytic Chemistry: Metal Nanoparticles with Nanoporous Shell for Heterogeneous Catalysis", invited talk at 7th Sino-US Nano Forum, June 2012.

16. **Tsung, C.-K.,** "Nanocrystal@Metal-Organic-Framework Nanostructures for Gas Phase Heterogeneous Catalysis", invited talk at Shanghai Jiao Tong University, China, June 2012.

15. **Tsung, C.-K.,** "Nanocrystal@Metal-Organic-Framework Nanostructures for Gas Phase Heterogeneous Catalysis", invited talk at Tsinghua University, China, May 2012.

14. **Tsung, C.-K.,** "Catalytic Reactions on Microporous Core-Shell Nanostructures", invited talk at Tufts University, November 2011.

13. **Tsung, C.-K.,** "Pt-Pd Nanocrystals with Morphology Control: Electrochemistry and Gas Phase Heterogeneous Catalysis", invited talk at University of Massachusetts at Boston, September 2011.

12. **Tsung, C.-K.,** "Nanoparticle Catalysts with Microporous and Mesoporous Shell", poster presentation at GRC - Nanoporous Materials & Their Applications, August 2011.

Before independent work

11. **Tsung, C.-K.,** "Catalytic Study of Pt and Pt Based Alloy Nanocrystals with Morphology Control", invited talk at Institute of Materials Research and Engineering, Singapore, August 2009.

10. **Tsung, C.-K.,** "Morphology controlled metal nanocrystals with for catalysis study" invited talk at The Research Center for Applied Sciences, Academia Sinica, Taiwan, April 2009.

9. **Tsung, C.-K.**, "Metal nanocrystals with morphology control for catalysis study" invited talk at National Tsing Hua University, Taiwan, April 2009.

8. **Tsung, C.-K.**, J.N. Kuhn, W. Huang, G.A. Somorjai, P. Yang, "Platinum nanocrystals smaller than 10 nm with size and shape control: A study of ethylene and pyrrole hydrogenation", oral talk at Spring 2009 ACS Meeting, Salt Lake City, UT, March 2009.

7. **Tsung, C.-K.**, J.N. Kuhn, W. Huang, G.A. Somorjai, P. Yang, "Pyrrole hydrogenation over size and shape controlled platinum nanocrystals", poster and Sci-Mix, Spring ACS Meeting, Salt Lake City, UT, March 2009.

6. **Tsung, C.-K.**, J.N. Kuhn, W. Huang, G.A. Somorjai, "Catalytic activity study of platinum nanoparticles loaded on different supports" poster, 5th Annual University of California Symposium on Surface Science and Its Applications, Santa Barbara, CA, June 2008.

5. **Tsung, C.-K.**, J. F. Wang, G. D. Stucky, "Cetyltrialkylammonium bromide mediated growth of gold nano-structures", oral talk at Spring 2007 MRS Meeting.

4. **Tsung, C.-K.**, J. F. Wang, G. D. Stucky, "One-step synthesis of large-aspect-ratio gold nanostructures using cetyltrialkylammonium bromide surfactants", oral talk at 233rd ACS National Meeting (2007).

3. **Tsung, C.-K.**, J. F. Wang, G. D. Stucky, "Synthesis of gold Nanorods with precisely controlled surface

plasmon resonance wavelengths", oral talk at Spring 2006 MRS Meeting.

2. **Tsung, C.-K.**, J. F. Wang, G. D. Stucky, "Structure-Selective Synthesis of Mesoporous Silica Nanofibers", poster presented at 5th International Mesostructured Materials Symposium (2006).

1. **Tsung, C.-K.**, M. H. Bartl, E. L. Hu, G. D. Stucky, "Molecular assembly of functional titania-based nanostructured composites", poster presented at BiMat/NASA REVIEW meeting (2005).

ACTIVITIES AND MEMBERSHIPS

- Member of the Materials Research Society [2005-present]
- Member of the American Chemical Society [2005-present]
- Member of the American Institute of Chemical Engineers [2009-present]

OUTREACH

A multifaceted outreach program is developed to promote our research and catalysis science to graduate students, undergraduate students, and high school students and teachers. The major focus is to assist high school science teachers. I have developed an outreach workshop entitled "Chemistry Magic!" targeting high school science teachers. It is a half day workshop that aims at introducing catalysis science to high school teachers. Several eye-catching chemistry phenomena/demonstrations are integrated into the workshop. Due to the success of the workshops at local high schools, we were invited by the Education Committee of Northeastern Section and of the Northeastern Section of American Chemical Society (NESACS) to perform our outreach at the event, "The Thirteenth Annual Connections to Chemistry Program" in Burlington High School for high school chemistry teachers. We have also been invited to perform the work shop at Family Science Days, a free event open to the general public, which is a yearly production of the Annual Meeting of the American Association for the Advancement of Science (AAAS).

SERVICES

- Faculty Search Committee of Boston College 2010-2016, 2019-
- Physical Chemistry Seminar Committee of Boston College 2010-
- Graduate Admissions Committee of Boston College 2010-
- Academic Advisor of Undergraduate Students of Boston College 2010-
- Organizer of American Chemical Society Meetings
- Organizer of Materials Research Society Conferences
- Grant Reviewers (NSF; DOE; ACS-PRF)
- Referee Reviewers of Journals (Science; Nature; Nature Materials; Nature Chemistry; Nature Communications; Journal of the American Chemical Society; Angewandte Chemie International Edition; Nano Letters; ACS Nano; ACS Catalysis; Chemical Science, Chemical Communications; Nanoscale; Small.)
- Associate Editors of Journals (RSC Advances; Scientific Reports)

ADVISING

Academic Alumni:

Chun-Hong Kuo (Postdoc; Current: Assistant Professor at SINICA in Taiwan)
Xiangwen Liu (Postdoc; Current: Postdoc at Nanyang Technological University in Singapore)
Brian Sneed (Ph.D. Student; Current: Postdoc at Oak Ridge National Laboratory)
Lie-Yang Chou (Ph.D. Student; Current: Assistant Professor at ShanghaiTech University)
Maggie Sheehan (Ph.D. Student; Current: Senior Scientist at a start-up company)
Joe Morabito (Ph.D. Student; Current: Research Scientist at a start-up company)
Allison Yong (Ph.D. Student; Current: Research Scientist at a start-up company)