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FIELD OF RESEARCH:

Organometallic & inorganic chemistry: Catalysis development in (i) sustainable green molecular synthesis (C-H and C-O activation), (ii) renewable energy and (iii) small molecules activation (CO₂ fixation). Ligand design for carbene and carbene/carbodicarbene chemistry.

EDUCATION:

2000 Ph.D., Chemistry, University of Kentucky, (USA)
1994 B.S., Chemistry, Winona State University, (USA)

EXPERIENCES:

2015-present **Research Fellow**, Academia Sinica.
2011-2015 **Associate Research Fellow**, Academia Sinica
2006-2010 **Assistant Research Fellow**, Academia Sinica
2018-present **Professor**, National Taiwan University
2011-present **Professor**, National Chiao-Tung University
2003-2006 **Lecturer**, Chemistry, University of Ottawa, Canada.
2001-2003 **Postdoctoral Researcher**, Chemistry, University of Ottawa
Canada
2000-2001 **Postdoctoral Researcher**, Chemistry University California
Santa Barbara, USA

HONORS AND AWARDS:

2010 *Outstanding Young Investigator Award*, The Chemical Society Located in Taipei
2013 *Distinguished Lectureship Award*, The Chemical Society of Japan
2012 *Outstanding Young Researcher Grant*, National Science Council
2014 *Award for Outstanding Young Scholar*, Shui-Mu Foundation of Chemistry
2015 *Career Development Award*, Academia Sinica
2015 *Outstanding Young Research Grant*, Ministry of Science and Technology
2015 Asia Core Program Lectureship Awards (Japan Tours)
2015 Asia Core Program Lectureship Awards (Korea Tours)
2016 Asian Core Program Lectureship Award (China Tours)
2018 Visiting Professor, Osaka Prefecture University, Osaka, Japan

GOVERNMENTAL & INTERNATIONAL APPOINTMENTS

- **Academic Advisory Board:** Tunku Abdul Rahman College University,

Malaysia (2016-present)

- **Reviewing Committee Board:** Natural Science Division of the Ministry of Science & Technology of Taiwan (2017-present).
- **Reviewing Committee Board:** Promotion of Science for the Ministry of Science and Technology, Taiwan (2016-present).
- **Advisory Committee Board:** Academia Sinica for Scientific Direction
- **Co-Chair:** International Office of Academia Sinica (2017-present)

ORGANIZING COMMITTEE FOR CONFERENCE AND SYMPOSIUM

Head organizer: The Ta-Shue Chou Lectureship Symposium (2014)

Head organizer: The Ta-Shue Chou Lectureship Symposium (2015)

Secretary: Catalysis and Fine Chemical, Taipei (2016)

Co-Chair organizer: Sunney-Chan lectureship Symposium (2017)

Co-Chairman: 10th Asian-European Symposium on Metal-Mediated Efficient Organic Synthesis, Taipei (2018)

LIST OF RESEARCH PUBLICATIONS:

Scholarly H-Index: 23

Academia Sinica (2006-2016)

- 1) Hsu, Y.-C.; Wang, V. C.-C.; Au-Yeung, K.-C.; Tsai, C.-Y.; Chang, C.-C.; Lin, B.-C.; Chan, Y.-T.; Hsu, C.-P.; Yap, G. P. A.; Jurca,* T.; Ong, T.-G.* One-Pot Tandem Photoredox and Cross-Coupling Catalysis with a Single Pd-Carbodicarbene Complex. *Angew. Chem. Int. Ed.* **2018**, *57*, 4622-4626..
- 2) Liu, S.; Chen, W.-C.; Ong, T.-G.* Carbodicarbene and Their Captodative Behavior in Catalysis. *ChemCatChem* **2018**, *10*, 1476-1656..
- 3) Liu, S.; Chen, W.-C.; Ong, T.-G.* Synthesis and Structure of Carbodicarbenes and Their Application in Catalysis. *Structure and Bonding, Springer International Publishing AG*, **2018**, *Accepted*
- 4) Shih, W.-C.; Chiang, Y.-T.; Wang, Q.; Wu, M.-C.; Yap, G. P. A.; Zhao, L.; Ong, T.-G.* Invisible Chelating Effect Exhibited Between Carbodicarbene and Phosphine Through π - π Interaction and Implication in the Cross-Coupling Reaction. *Organometallics* **2017**, *36*, 4287-4297.
- 5) Chen, W.-C.; Shih, W.-C.; Jurca, T.; Zhao, L.; Andrada, D. M.; Peng, C.-J.; Chang, C.-C.; Liu, S.-K.; Wang, Y.-P.; Wen, Y.-S.; Yap, G. P. A.; Hsu, C.-P.; Frenking, G.; Ong, T.-G.* Carbodicarbenes: Unexpected π -Accepting Ability During Reactivity with Small Molecules. *J. Am. Chem. Soc.* **2017**, *139*, 12830-12836.

- 6) Wang, T.-H.; Chen, W.-C.; Ong, T.-G.* Carbodicarbenes or Bent Allenes. *Journal of the Chinese Chemical Society* **2017**, *64*, 124-132.
- 7) Liu, C.-Y.; Chen, Y.-H.; Chen, C.-H.; Yu, M.-S.; Tsai, F.-Y.; Ong, T.-G.* Selective C(8)-H Activation of Imidazopyridines Mediated by Cooperative Nickel-Aluminum Catalysis. *Synthesis* **2016**, *48*, 2781-2788.
- 8) Wang, T.-H.; Lee, W.-C.; Ong, T.-G.* Ruthenium-Mediated Dual Catalytic Reactions of Isoquinoline via C-H Activation and Dearomatization for Isoquinolone. *Adv. Synth. Catal.* **2016**, *358*, 2751-2758.
- 9) Jurca, T.; Ouanounou, S.; Shih, W.-C.; Ong, T.-G.; Yap, G. P. A.; Korobkov, I.; Gorelsky, S.; Richeson, D. Structural and Electronic Trends for Five Coordinate 1st row Transition Metal Complexes: Mn(II) to Zn(II) Captured in a Bis(Iminopyridine) Framework. *Dalton Trans.* **2016**, *45*, 14327-14334.
- 10) Lee, W.-C.; Chen, C.-H.; Liu, C.-Y.; Yu, M.-S.; Lin, Y.-H.; Ong, T.-G.* Nickel-catalysed *para*-CH Activation of Pyridine with Switchable Regioselective Hydroheteroarylation of Allylarenes. *Chemical Communications* **2015**, *51*, 17104-17107.
- 11) Chen, W.-C.; Shen, J.-S.; Jurca, T.; Peng, C.-J.; Lin, Y.-H.; Wang, Y.-P.; Shih, W.-C.; Yap, G. P. A.; Ong, T.-G.* Expanding the Ligand Framework Diversity of Carbodicarbenes and Direct Detection of Boron Activation in the Methylation of Amines with CO₂. *Angew. Chem. Int. Ed.* **2015**, *127*, 15422-15427.
- 12) Hsu, Y.-C.; Shen, J.-S.; Lin, B.-C.; Chen, W.-C.; Chan, Y.-T.; Ching, W.-M.; Yap, G. P. A.; Hsu, C.-P.; Ong, T.-G.* Synthesis and Isolation of an Acyclic Tridentate Bis(Pyridine)Carbodicarbene and Studies on Its Structural Implications and Reactivities. *Angew. Chem. Int. Ed.* **2015**, *54*, 2420-2424.
- 13) Lee, W.-C.; Shih, W.-C.; Wang, T.-H.; Liu, Y.; Yap, G. P. A.; Ong, T.-G.* Nickel Promoted Switchable Hydroheteroarylation of Cycloienes via C-H Bond Activation of Heteroarenes. *Tetrahedron* **2015**, *71*, 4460-4464.
- 14) Yu, M.-S.; Lee, W.-C.; Chen, C.-H.; Tsai, F.-Y.; Ong, T.-G.* Controlled Regiodivergent C-H Bond Activation of Imidazo[1,5-a]Pyridine via Synergistic Cooperation Between Aluminum and Nickel. *Org. Lett.* **2014**, *16*, 4826-4829.
- 15) Huang, H.-J.; Lee, W.-C.; Yap, G. P. A.; Ong, T.-G.* Synthesis and Characterization of Amino-NHC Coinage Metal Complexes and Application for C-H activation of Caffeine. *Journal of Organometallic Chemistry* **2014**, *761*, 64-73.

- 16) Chen, W.-C.; Lai, Y.-C.; Shih, W.-C.; Yu, M.-S.; Yap, G. P. A.; Ong, T.-G.* Mechanistic Study of a Switch in the Regioselectivity of Hydroheteroarylation of Styrene Catalyzed by Bimetallic Ni-Al Through C-H Activation. *Chem. Eur. J.* **2014**, *20*, 8099–8105.
- 17) Chen, W.-C.; Lee, C.-Y.; Lin, B.-C.; Hsu, Y.-C.; Shen, J.-S.; Hsu, C.-P.; Yap, G. P. A.; Ong, T.-G.* The Elusive Three-Coordinate Dicationic Hydrido Boron Complex. *J. Am. Chem. Soc.* **2014**, *136*, 914–917.
- 18) Lee, W.-C.; Wang, T.-H.; Ong, T.-G.* Ligand Promoted Pd-Catalyzed Dehydrogenative Alkenylation of Heteroarenes. *Chemical Communications* **2014**, *50*, 3671–3673.
- 19) Tai, C.-C.; Yu, M.-S.; Chen, Y.-L.; Chuang, W.-H.; Lin, T.-H.; Yap, G. P. A.; Ong, T.-G.* Synthesis of a Guanidine NHC Complex and Its Application in Borylation Reactions. *Chemical Communications* **2014**, *50*, 4344–4346.
- 20) Lee, W.-C.; Wang, C.-H.; Lin, Y.-H.; Shih, W.-C.; Ong, T.-G.* Tandem Isomerization and C–H Activation: Regioselective Hydroheteroarylation of Allylarenes. *Org. Lett.* **2013**, *15*, 5358–5361.
- 21) Chen, W.-C.; Hsu, Y.-C.; Lee, C.-Y.; Yap, G. P. A.; Ong, T.-G.* Synthetic Modification of Acyclic Bent Allenes (Carbodicarbenes) and Further Studies on Their Structural Implications and Reactivities. *Organometallics* **2013**, *32*, 2435–2442.
- 22) Chen, C.-T.; Chen, C.-H.; Ong, T.-G. Complementary Helicity Interchange of Optically Switchable Supramolecular-Enantiomeric Helicenes with (–)-Gel-Sol-(+)-Gel Transition Ternary Logic. *J. Am. Chem. Soc.* **2013**, *135*, 5294–5297.
- 23) Jurca, T.; Chen, W.-C.; Michel, S.; Korobkov, I.; Ong, T.-G.; Richeson, D. S. Solid-State Thermolysis of a Fac-Rhenium(I) Carbonyl Complex with a Redox Non-Innocent Pincer Ligand. *Chem. Eur. J.* **2013**, *19*, 4278–4286.
- 24) Shih, W.-C.; Chen, W.-C.; Lai, Y.-C.; Yu, M.-S.; Ho, J.-J.; Yap, G. P. A.; Ong, T.-G.* The Regioselective Switch for Amino-NHC Mediated C–H Activation of Benzimidazole via Ni–Al Synergistic Catalysis. *Org. Lett.* **2012**, *14*, 2046–2049.
- 25) Tai, C.-C.; Chang, Y.-T.; Tsai, J.-H.; Jurca, T.; Yap, G. P. A.; Ong, T.-G.* Subtle Reactivities of Boron and Aluminum Complexes with Amino-Linked N-Heterocyclic Carbene Ligation. *Organometallics* **2012**, *31*, 637–643.
- 26) Chen, W.-C.; Hsu, Y.-C.; Shih, W.-C.; Lee, C.-Y.; Chuang, W.-H.; Tsai, Y.-F.; Chen, P. P.-Y.; Ong, T.-G.* Metal-Free Arylation of Benzene and Pyridine

- Promoted by Amino-Linked Nitrogen Heterocyclic Carbenes. *Chemical Communications* **2012**, *48*, 6702.
- 27) Liu, Y.-M.; Lin, Y.-C.; Chen, W.-C.; Cheng, J.-H.; Chen, Y.-L.; Yap, G. P. A.; Sun, S.-S.; Ong, T.-G.* Synthesis and Characterization of Para-Pyridine Linked NHC Palladium Complexes and Their Studies for the Heck–Mizoroki Coupling Reaction. *Dalton Trans.* **2012**, *41*, 7382.
- 28) Wang, C.-H.; Shih, W.-C.; Chang, H. C.; Kuo, Y.-Y.; Hung, W.-C.; Ong, T.-G.*; Li, W.-S. Preparation and Characterization of Amino-Linked Heterocyclic Carbene Palladium, Gold, and Silver Complexes and Their Use as Anticancer Agents That Act by Triggering Apoptotic Cell Death. *J. Med. Chem.* **2011**, *54*, 5245–5249.
- 29) Li, C.-Y.; Kuo, Y.-Y.; Tsai, J.-H.; Yap, G. P. A.; Ong, T.-G.* Amine-Linked N-Heterocyclic Carbenes: the Importance of an Pendant Free-Amine Auxiliary in Assisting the Catalytic Reaction. *Chem. Asian J.* **2011**, *6*, 1520–1524.
- 30) Tsai, J.-H.; Lin, S.-T.; Yang, R. B.-G.; Yap, G. P. A.; Ong, T.-G.* Two-Way Street Transformation of Boronium and Borane Complexes Facilitated by Amino-Linked N-Heterocyclic Carbene. *Organometallics* **2010**, *29*, 4004–4006.
- 31) Tsai, C.-C.; Shih, W.-C.; Fang, C.-H.; Li, C.-Y.; Ong, T.-G.*; Yap, G. P. A. Bimetallic Nickel Aluminum Mediated Para-Selective Alkenylation of Pyridine: Direct Observation of H₂,H₁-Pyridine Ni(0)–Al(III) Intermediates Prior to C–H Bond Activation. *J. Am. Chem. Soc.* **2010**, *132*, 11887–11889.
- 32) Hu, Y.-C.; Liang, C.-F.; Tsai, J.-H.; Yap, G. P. A.; Chang, Y.-T.; Ong, T.-G.* Zirconium Complexes Supported by Imidazolones: Synthesis, Characterization, and Application of Precatalysts for the Hydroamination of Aminoalkenes. *Organometallics* **2010**, *29*, 3357–3361.
- 33) Hu, Y.-C.; Tsai, C.-C.; Shih, W.-C.; Yap, G. P. A.; Ong, T.-G.* The Zirconium Benzyl Mediated C–N Bond Cleavage of an Amino-Linked N-Heterocyclic Carbene. *Organometallics* **2010**, *29*, 516–518.
- 34) Huang, Y.-P.; Tsai, C.-C.; Shih, W.-C.; Chang, Y.-C.; Lin, S.-T.; Yap, G. P. A.; Chao, I.; Ong, T.-G.* Kinetic and Thermodynamic Study of Syn–Anti Isomerization of Nickel Complexes Bearing Amino-Linked N-Heterocyclic Carbene Ligands: the Effect of the Pendant Arm of the NHC. *Organometallics* **2009**, *28*, 4316–4323.

- 35) Shih, W.-C.; Wang, C.-H.; Chang, Y.-T.; Yap, G. P. A.; Ong, T.-G.* Synthesis and Structure of an Amino-Linked N-Heterocyclic Carbene and the Reactivity of Its Aluminum Adduct. *Organometallics* **2009**, *28*, 1060–1067.
- 36) Lavoie, N.; Ong, T.-G.*; Gorelsky, S. I.; Korobkov, I.; Yap, G. P. A.; Richeson, D. S. Bis(Imido) W(VI) Complexes Chelated by N,N'-Disubstituted 1,8-Diamidonaphthalene: an Analysis of Bonding, Isocyanate Insertion, and Al-Me Transfer. *Organometallics* **2007**, *26*, 6586–6590.

Graduate and Post-Graduate Studies:

- 37) Rowley, C. N.; Ong, T.-G.; Priem, J.; Richeson, D. S.; Woo, T. K. Analysis of the Critical Step in Catalytic Carbodiimide Transformation: Proton Transfer From Amines, Phosphines, and Alkynes to Guanidates, Phosphoguanidates, and Propiolamidates with Li and Al Catalysts. *Inorg. Chem.* **2008**, *47*, 12024–12031.
- 38) Rowley, C. N.; Ong, T.-G.; Priem, J.; Woo, T. K.; Richeson, D. S. Amidolithium and Amidoaluminum Catalyzed Synthesis of Substituted Guanidines: an Interplay of DFT Modeling and Experiment. *Inorg. Chem.* **2008**, *47*, 9660–9668.
- 39) Bazinet, P.; Ong, T.-G.; O'Brien, J. S.; Lavoie, N.; Bell, E.; Yap, G. P. A.; Korobkov, I.; Richeson, D. S. Design of Sterically Demanding, Electron-Rich Carbene Ligands with the Perimidine Scaffold. *Organometallics* **2007**, *26*, 2885–2895.
- 40) Ong, T.-G.; O'Brien, J. S.; Korobkov, I.; Richeson, D. S. Facile and Atom-Efficient Amidolithium-Catalyzed C–C and C–N Formation for the Construction of Substituted Guanidines and Propiolamidines. *Organometallics* **2006**, *25*, 4728–4730.
- 41) Said, F. F.; Ong, T.-G.; Bazinet, P.; Yap, G. P. A.; Richeson, D. S. Linking Hydrogen Dicarboxylate Synthons with Substituted Guanidinium Cations: Transforming Rings and Chains Into Two- and Three-Dimensional Structures. *Crystal Growth & Design* **2006**, *6*, 1848–1857.
- 42) Said, F. F.; Bazinet, P.; Ong, T.-G.; Yap, G. P. A.; Richeson, D. S. Hydrogen Bonding Motifs of N,N',N''-Trisubstituted Guanidinium Cations with Spherical and Rodlike Monoanions: Syntheses and Structures of I⁻, I³⁻, and SCN⁻-Salts. *Crystal Growth & Design* **2006**, *6*, 258–266.
- 43) Said, F. F.; Ong, T.-G.; Yap, G. P. A.; Richeson, D. Strong and Weak Hydrogen-Bonding Interactions in the Structures of N,N', N''-Trisubstituted

- Guanidinium Chlorides and Bromides. *Crystal Growth & Design* **2005**, *5*, 1881–1888.
- 44) Ong, T.-G.; Yap, G. P. A.; Richeson, D. S. Catalytic Construction and Reconstruction of Guanidines: Ti-Mediated Guanylation of Amines and Transamination of Guanidines. *J. Am. Chem. Soc.* **2003**, *125*, 8100–8101.
- 45) Ong, T.-G.; Yap, G. P. A.; Richeson, D. S. Redefining the Coordination Geometry and Reactivity of Guanidinate Complexes by Covalently Linking the Guanidinate Ligands. Synthesis and Reactivity of $[RN\{NH(R)\}CN(CH_2)_2NC\{NH(R)\}NR]M(CH_2Ph)_2$ ($R = iPr$; $M = Ti, Zr$). *Organometallics* **2003**, *22*, 387–389.
- 46) Ong, T.-G.; Yap, G. P. A.; Richeson, D. S. Catalytic C-N Bond Metathesis of Carbodiimides by Group 4 and 5 Imido Complexes Supported by Guanidinate Ligands. *Chemical Communications* **2003**, *20*, 2612–2613.
- 47) Ong, T.-G.; Yap, G. P. A.; Richeson, D. S. Formation of a Guanidinate-Supported Titanium Imido Complex: a Catalyst for Alkyne Hydroamination. *Organometallics* **2002**, *21*, 2839–2841.
- 48) Ong, T.-G.; Wood, D.; Yap, G. P. A.; Richeson, D. S. Transformations of Aryl Isocyanide on Guanidinate-Supported Organozirconium Complexes to Yield Terminal Imido, Iminoacyl, and Eneidamido Ligands. *Organometallics* **2002**, *21*, 1–3.

LECTURESHIP AT CONFERENCES & SYMPOSIUMS:

• Keynote and Invited Lectureships

1. The 4th International Symposium on C-H Activation (ISCHA4), Yokohama, Sept 2018 (**Invited lectureship**)
2. The 4th International Symposium on Organometallic and Catalysis, Taipei, June 2018 (**Invited Lectureship**)
3. University of Malaya-Academia Sinica Research Symposium, Kuala Lumpur, Malaysia, Oct 2017 (**Invited lectureship**).
4. The 6th International Conference for Young Chemists, Penang, Malaysia, August 2017 (**Keynote lectureship**).
5. The 3rd Riken-Academia Sinica Join Conference: Focus on Chemistry & Chemical Biology, Tokyo, Japan, March, 2017 (**Invited lectureship**).
6. Symposium on Chemistry for Creative Economy (Bilateral Symposium between Taiwan and Thailand), Taipei, Taiwan, Feb 2017 (**Invited lectureship**).
7. The 14th International Symposium for Chinese Organic Chemists (ISCOC) & the 11th International Symposium for Chinese Inorganic Chemists (ISCIC), Singapore, Dec 2016 (**Invited lectureship**).
8. The Chinese Chemical Society Annual Conference, Dec 2016, Taichung, Taiwan, Dec 2016 (**Invited lectureship**).
9. Joint symposium between Institute of Chemistry and Institute of Transformative Bio-Molecules, Nagoya University, Japan, Nov 2016 (**Invited**

- lectureship).**
10. Advanced Research Network for Asian Cutting-Edge Organic Chemistry (ACP), Dajeon, Korea, Oct 2016 (**Keynote lectureship**).
 11. The 27th International Conference on Organometallic Chemistry, Melbourne, Australia, July 2016 (**Invited lectureship**).
 12. The 3rd Japan-Taiwan-Singapore-Hong Kong Quadrilateral Symposium on Coordination Chemistry, Taipei, Taiwan, August 2016 (**Invited lectureship**).
 13. 1st Cross-Strait Symposium on Molecular Synthesis and Function, Taipei, Taiwan, April 2016 (**Invited lectureship**).
 14. International Symposium Organic Reaction (Japan-Taiwan), Kyoto, Japan, April 2016 (**Invited lectureship**).
 15. King Abdullah University Science and Technology-Academia Sinica Workshop for Enhancing Collaborations on Research and Education in Chemical and Material Science Engineering, Saudi Arabia, April 2016. (**Invited lectureship**).
 16. ~~International Chemical Congress of Pacific Basin Societies~~ *Innovative Approaches in Bond Cleavage and Bond-Forming Reactions* *Using Late Transition-Metal Centres*, Honolulu, Hawaii, Dec 20105 (**Invited lectureship**).
 17. Chemical Society China (Taiwan), Hualien, Taiwan, Dec 2015 (**Invited lectureship**).
 18. University of Malaya-Academia Sinica Research Workshop, Kuala Lumpur, Malaysia, Oct 2015 (**Keynote lectureship**).
 19. University Science Malaysia, Penang, Oct 2015 (**Keynote lectureship**).
 20. The 2nd Future Organic Chemistry, Hiroshima, Japan, Oct 2015 (**Keynote lectureship**).
 21. Mini-Symposium on Chemistry for Creative Economy-Taiwan-Thailand, Hsinchu, Taiwan, Jan 2015.
 22. 13th International Symposium for Chinese Organic Chemists, 10th International Symposium for Chinese Inorganic Chemists, China, Dec 2014.
 23. The Taiwan Annual Chemical Society of 103, Hsinchu, Taiwan, Nov 2014.
 24. Bilateral Symposium India-Taiwan on Recent Trends in Chemical Sciences (**Keynote lectureship**).
 25. The 114th Korean Chemical Society Annual Meeting on Organometallics: New Trends in Catalysis, Korea, Oct 2014, (**Keynote lectureships**).
 26. 26th International Conference on Organometallic Chemistry, Hokkaido, Japan, July 2014.
 27. International Symposium on Homogeneous Catalysis XIX, Ottawa, Canada, July 2014.
 28. The 3rd International Conference on the Frontier Research in Organic Synthesis & Materials, Hshih-Chuh, Taiwan, Jun 2014.
 29. Taiwan's Inorganic Symposium and Discussion, Hsinchu, Taiwan, April 2014 (**Keynote lectureships**).
 30. The International Symposium on Catalysis and Fine Chemicals, Beijing, China, Dec 2013 (**Keynote lectureships**).
 31. The 11th International Symposium on Organic Reaction, Taipei, Nov 2013.
 32. Academia Sinica-The Scripps Research Institute Joint Conference on Chemical Science, Taiwan, Sept 2013 (**Keynote lectureships**).
 33. The 15th Asian Chemical Congress, Singapore, Aug 2013 (**Keynote lectureships**).
 34. The 93th Annual Meeting of the Chemical Society of Japan, Shiga, Japan, Apr 2013 (**Award lectureships**).
 35. ACS National Meeting on *Organometallic Developments in C-H Bond*

- Activation*, New Orleans, Apr 2013, (**Keynote lectureships**).
36. The Ta-Shue Chou Memorial Synthetic Organic Chemistry Symposium, Academia Sinica, Taiwan, Mar 2013, (**Keynote lectureships**).
 37. The 17th Malaysia Chemical Congress, Kuala Lumpur, Malaysia, Oct 2012, (**Keynote lectureships**).
 38. 12th International Symposium for Chinese Organic Chemists, 9th International Symposium for Chinese Inorganic Chemists, Lanzhou, China, Aug 2012.
 39. Bilateral Academic Exchange Symposium, Xian Petroleum University, China, Aug 2012.
 40. Taiwan-Japan Symposium of Frontier Research on Design and Application of Fine Chemicals, Taipei, Taiwan, Jan 2012.
 41. The 3rd Taiwan-Korea Bilateral Symposium, Hualian, Taiwan, Nov 2011.
 42. The Taiwan Annual Chemical Society of 99, Taipei, Taiwan, Dec 2010.
 43. The 6th Asian Symposium on Advanced Organic Synthesis, Kyoto, Japan, Nov 2010.
 44. The 11th International Symposium for Chinese Organic Chemists. The 8th International Symposium for Chinese Inorganic Chemist, Taipei, Taiwan, Oct 2010.
 45. The Taiwan Annual Chemical Society of 98, Kaoshiung, Taiwan, Dec 2009.
 46. The 2nd Asian Symposium on Advanced Organic Synthesis. Kyoto, Japan, Nov 2006, (**Keynote lectureships**).

• **Accepted Lecture in Symposium**

1. Advanced Research Network for Asian Cutting-Edge Organic Chemistry (ACP), Xi-An, China, Nov 2017.
2. The 25th International Conference on Organometallic Chemistry, Lisbon, Portugal Sept 2012.
3. The 14th Asian Chemical Congress, Bangkok, Thailand, Sept 2011
4. BTI's 1st Annual World Congress of Catalytic Asymmetric Synthesis, Beijing, China, July 2010
5. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, USA, Dec 2010.
6. 6th Tateshina Conference on Organic Chemistry, Chino, Japan, Nov 2006.

• **Invited Lectureship Tours in Universities & Research Institutes.**

1. Keio University, Yokohama, Sept 2018
2. Soka University, Tokyo, Sept 2018
3. Tokyo Institute of Technology, Sept 2018
4. Waseda University, Sept 2018
5. Hong Kong City University, May 2018
6. The University of Hong Kong, May 2018
7. Chinese University Of Hong Kong, May 2018
8. Hong Kong University of Science and Technology, May 2018
9. Northwest University, Xi'An, China, April 2018
10. ShanXi Normal University, Xi'An, China, April 2018
11. Xi'An JiaoTong University, Xi'An, China, April 2018
12. University Tunku Abdul Rahman, Malaysia, Feb 2018
13. University of Malaya, Malaysia, Feb 2018
14. Royal Military College, Canada, Nov 2017
15. University of Ottawa, Canada, Nov 2017
16. University of Montreal, Canada, Nov 2017
17. McGill University, Canada, Nov 2017
18. Concordia University, Canada, Nov 2017
19. Nanjing Tech University, China, Sept 2017

20. Shanghai Institute of Organic Chemistry, Sept 2017
21. Fudan University, China, Sept 2017
22. Shanghai Technology University, Sept 2017
23. Sun-Yat Sen University, Sept 2017
24. Southern China Technology University, Sept 2017
25. The University of Tokyo, Japan, Aug 2017
26. Riken Research Institute, Japan, Aug 2017
27. Tohoku University, Japan, Aug 2017
28. Chiba University, Japan, Aug 2017
29. National Taiwan University, Jun 2017
30. Nanjing Tech University, China, May 2017
31. Nanjing University, China, May 2017
32. Nanjing Normal University, China, May 2017
33. Yangzhou University, China, May 2017
34. Changzhou University, China, May 2017
35. National Chung-Cheng University, TW March 2017
36. National Chiayi University, TW, April 2017
37. Kaohsiung Medical University, TW, April 2017
38. National Pusan University, Busan, Korea, Sept 2016
39. KAIST, Dajeon, Korea, Sept 2016
40. Postech University, Pohang, Korea, Sept 2016
41. RWTH-Aachen University, Germany, July 2016
42. Gottingen University, Germany, July 2016
43. Marburg University, Germany, June 2016
44. National Sun-Yat-Sen University, TW, May 2016
45. Gifu University, Japan, April 2016
46. Kyoto University, Japan, April 2016
47. Osaka University, Japan, April 2016
48. Tamkang University, TW, March 2016
49. Leibniz Institute for Catalysis, Germany, June 2015
50. University of Wurzburg, Germany, June 2015
51. Max Plank Institute, Mulheim, Germany, June 2015
52. Gottingen University, Germany, June 2015.
53. Hiroshima University, Japan, April 2015.
54. Taipei Education University, TW, Dec 2014
55. Ajou University, Korea, Oct 2014.
56. National Seoul University, Korea, Oct 2014.
57. University of Malaya, Malaysia, Sept 2014.
58. National Chi Nan University, TW, March 2014.
59. University of Malaya, Malaysia, Feb 2012
60. University of Malaya, Malaysia, Feb 2011
61. University Sains Malaysia, Malaysia, Feb 2001
62. Taiwan National Normal University, TW, Jun 2011
63. National Kaoshiung University, TW, Jun 2011
64. National Taipei Technology University, TW, Dec 2010.
65. National National Chiao Tung University, TW, Oct 2010.
66. National Chung-Hsi University, TW, Oct 2010.
67. National Chang-Hua University of Education, TW, April 2010.
68. National Sun Yat Seng University, TW, March 2010.
69. National Chung Cheng University, TW, Oct 2009.
70. National Tonghua University, TW, Jun 2009.
71. Fu Jen Catholic University, TW, Nov 2008.
72. Taiwan Normal University, TW, March 2008.
73. University of Malaya, Malaysia, Feb 2007.