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Professor Wen-Sheng Chung (鍾文聖)

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Research Area: Host-Guest Chemistry, Supramolecular Chemistry, Sensory Materials, Organic Photochemistry, Physical Organic Chemistry.

Education and Experience:

1978-1982	B. S., Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan.
1985-1990	Ph. D., Department of Chemistry, Columbia University, USA (Advisor: Prof. Nicholas J. Turro).
1990-1991	Postdoctoral Fellow, Department of Chemistry, Yale University, USA (Advisor: Prof. Jerome A. Berson).
1991-1997	Associate Professor in the Department of Applied Chemistry, National Chiao Tung University (NCTU).
1997-2021	Professor, Department of Applied Chemistry, NCTU.
2005 (March-July)	Visiting Professor, Mie University, Japan.
2006-2008	Chair, Department of Applied Chemistry, NCTU.
2008-2011	Deputy Dean of the College of Science, NCTU.
2013-2015	Director, Advanced Instrumentation Center, NCTU.
2021-till today	Professor, Department of Applied Chemistry, National Yang Ming Chiao Tung University (NYCU).

Award and Honor:

- Pegram Research Award, when Graduated from Columbia University in **1990**, New York, USA.
- University Excellent Teaching Award in **2000**, NCTU, Taiwan.
- University Outstanding Teaching Award in **2003**, NCTU, Taiwan.
- Organizing Committees of International Symposium on Organic Reactions, (ISOR). Symposium Series between the Organic Chemical Societies of Taiwan and Japan (since 1996).
- Guest Editor of J. Chinese Chem. Soc., **2006**, memorial issue for Prof. T.-I. Ho.
- Asian Core Program Lectureship Award to Japan, the 2nd International Conference on Cutting-Edge Organic Chemistry in Asia, September 5th, **2007**, Busan, Korea.
- Asian Core Program Lectureship Award to Korea, the 4th International Conference on Cutting-Edge Organic Chemistry in Asia, Dec 2nd, **2009** Bangkok, Thailand.
- Co-organizer of the Organic Symposium No. 47, International Chemical Congress of Pacific Basin Societies (**PacifiChem 2010**), Hawaii, USA.
- Asian Core Program Lectureship Award to Singapore, the 6th International Conference on Cutting-Edge Organic Chemistry in Asia, Dec 14th, **2011** Hong-Kong, China.
- University Outstanding Teaching Award in **2012**, NCTU, Taiwan.
- A member of the International Advisory Board of the Asian Journal of Organic Chemistry (a Journal published by Wiley-VCH), February 8th, **2012** till present.

- **Organizer** of the 7th Taiwan-Japan Bilateral Symposium on the Architecture of Functional Organic Molecules, October 21-24, **2012**, Hsinchu, Taiwan.
- Appointed as Distinguished Professor, College of Science, NCTU, April 1, 2013 till March 31, 2016.
- Co-organizer of the Organic Symposium No. 71, "Symposium on Molecular and Supramolecular Photochemistry", International Chemical Congress of Pacific Basin Societies (**PacifiChem 2015**), Hawaii, USA.
- **Organizer** of the 13th International Symposium on Organic Reactions, October 24-26, **2018**, Hsinchu, Taiwan.
- One of the Associate Editors of Frontiers in Chemistry, Section: Supramolecular Chemistry, (a Journal of Open Access), start from March 4th, **2019**.
- A member of the Editorial Board of the Journal of the Chinese Chemical Society (a Journal published by Wiley-VCH), start from March 1st, **2021**.

Research Interests:

(1) Host-Guest Chemistry: The synthesis of chromogenic and fluorogenic calix[4]arenes, biscalix[4]arenes, rotaxanes, and their derivatives in supramolecular chemistry, chemical sensors, chiral sensing, organogelators, and chromoionophores. Furthermore, we are interested in the application of these supramolecular hosts in controlling the face, regio, and stereo-selectivity of bimolecular organic reactions.

(2) Reactive Intermediates: We are interested in the synthesis and chemistry of heterocyclic fused sultines, which are excellent precursors for many heterocyclic *ortho*-quinodimethanes as well as high spin molecules. Laser flash photolysis, EPR, and matrix isolated FTIR, have been applied in studying these reactive intermediates. One ultimate goal of this research is to construct high spin organic magnet.

Invited Lectures:

I have delivered over 50 invited lectures or oral presentations in International Conferences, which do not include invited lectures from domestic Universities or Industrial Institutes.

Publications: OCID: 0000000301349725

A. Referred Journal Papers

1. N. J. Turro,* **W.-S. Chung**, and M. Okamoto *J. Photochem. Photobiol. A.* **1988**, *45*, 17. "Pressure Effects on the Photocycloaddition of 2-Adamantanone with Fumaronitrile".
2. **W.-S. Chung**, N. J. Turro,* S. Srivastava, H. Li, and W. J. le Noble* *J. Am. Chem. Soc.* **1988**, *110*, 7882. "Hyperconjucation as a Factor in Face Selectivity during Cycloaddition".
3. **W.-S. Chung**, N. J. Turro,* J. Mertes, and J. Mattay *J. Org. Chem.* **1989**, *54*, 4881. "Pressure-Induced Diastereoselectivity in Photoinduced Diels-Alder Reactions".
4. **W.-S. Chung**, N. J. Turro,* J. Silver, and W. J. le Noble* *J. Am. Chem. Soc.* **1990**, *112*, 1202. "Modification of Face Selectivity by Inclusion in Cyclodextrins".
5. **W.-S. Chung**, N. J. Turro,* S. Srivastava, H. Li, and W. J. le Noble* *J. Org. Chem.* **1991**, *56*, 5020. "Stereochemistry of Photocycloaddition of (*E*)-1,2-Dicyano- and (*Z*)-1,2-Diethoxyethylene to 5-Substituted Adamantanones".
6. **W.-S. Chung**, N. J. Turro,* I. R. Gould,* and S. Farid* *J. Phys. Chem.* **1991**, *95*, 7752. "Effects of External Pressure on Photoinduced Electron-Transfer Reactions in the Marcus Inverted Region".
7. **W.-S. Chung**, "(I) Pressure as a Tool in the Study of Photoinduced Electron-Transfer, Energy-Transfer and Cycloaddition Reactions, (II) The Influence of Electronic Effects and Inclusion in Cyclodextrins on

the Face Selectivities of Photoinduced Oxetane Formation of 5-Substituted Adamantan-2-ones", Ph. D. Thesis, Columbia University, 1990.

Works published as an Independent Researcher

8. **W.-S. Chung**,* N.-J. Wang, Y.-D. Liu, Y.-J. Leu and M. Y.-N Chiang, *J. Chem. Soc. Perkin Trans.*2, **1995**, 307. "Photocycloaddition of Fumaronitrile to 2-Adamantanones and Modification of Face Selectivity by Inclusion in beta-Cyclodextrin and its Derivatives".

9. **W.-S. Chung**,* Y.-D. Liu and N.-J. Wang, *J. Chem. Soc. Perkin Trans.2*. **1995**, 581. "Face Selectivity in the Paterno-Buchi Reactions of Methacrylonitrile to 5-Substituted Adamantan-2-ones".

10. **W.-S. Chung,*** and J.-Y. Wang, *J. Chem. Soc. Chem. Commun*. **1995**, 971, "Control of Regio-selectivity in the Diels-Alder Reactions of Alkyl-substituted 1,4-Benzoquinones by beta-Cyclodextrin and its Derivatives".

11. **W.-S. Chung**,* W.-J. Lin, W.-D. Liu and L.-G. Chen, *J. Chem. Soc. Chem. Commun*. **1995**, 2537. "Synthesis of Furan-, Thiophene- and Pyrrole-fused Sultines and their Application in Diels-Alder Reactions").

12. S,-H. Tsai, **W.-S. Chung*** and H.-J. Wu,* *J. Chin. Chem. Soc*. **1996**, *43*, 281. "Stereochemistry of the Diels-Alder Reaction between (*E*)-gamma-Oxo-alpha, beta-unsaturated Thioesters with Cyclopentadiene".

13. H.-J. Wu,* S,-H. Tsai and **W.-S. Chung*** *Chem. Commun*. **1996**, 375. "A Novel Iodine-induced Sequential Cyclization Reaction of Norbornene Derivatives Leading to the Formation of Novel Iodo-Cage Compounds".

14. H.-J. Wu,* S,-H. Tsai and **W.-S. Chung*** *Tetrahedron Lett.* **1996**, *37*, 8209. "Iodine-induced Cyclization Reaction of *endo*-Thioester Substituted Norbornenes Followed by Methylthio Group Rearrangement".

15. H.-J. Wu,* S,-H. Tsai and **W.-S. Chung*** *J. Chin. Chem. Soc*. **1996**, *43*, 445. "Synthesis of 3,5,7-Trioxapentacyclo[7.2.1.0^{2,8}.0^{4,11}.0^{6,10}]dodecane. A Novel Diacetal Trioxa-cage".

16. **W.-S. Chung*** and C.-C. Ho *J. Chem. Soc. Perkin Trans*. 2 **1997**, 553. "Face Selectivity in the Photocycloaddition Reactions of Acrylonitrile to 5-Substituted Adamantan-2-ones and Pyrolysis of the Products to Methyleneadamantanes".

17. **W.-S. Chung*** and J.-H. Liu *Chem. Commun.* **1997**, 205. "Quinoxalino-fused Sultines and their Application in Diels-Alder Reactions".

18. **W.-S. Chung*** and C.-C. Ho *Chem. Commun.* **1997**, 317. "The Photochemistry of Acetone in the Presence of Exocyclic Olefins: An unexpected Competition between Photo-Conia and Paterno-Buchi Reactions".

19. L. C. Bush, R. B. Heath, X.-W. Feng, P. A. Wang, L. Maksimovic, A. I. Song, **W.-S. Chung**, A. B. Berinstain, J. C. Scaiano, J. A. Berson* *J. Am. Chem. Soc* **1997**, 119, 1406. "Tuning the Singlet-Triplet Energy Gap in a Non-Kekule' Series by Designed Structural Variation. The Singlet States of *N*-Substituted-3,4-dimethylenepyrrole Biradicals".

20. **W.-S. Chung**,* T.-L. Tsai, C.-C. Ho, M. Y. N. Chiang and W. J. le Noble, *J. Org. Chem.* **1997**, *62*, 4672. "Face Selectivity in the 1,3-Dipolar Cycloaddition Reactions of Benzonitrile Oxide with 5-Substituted Adamantan-2-thiones and 2-Methyleneadamantanes".

21. T.-L. Tsai, W.-C. Chen, C.-H. Yu, W. J. le Noble and **W.-S. Chung*** *J. Org. Chem.* **1999**, *64*, 1099. "Temperature and *Para*-substituent Effects on the Face Selectivity of 1,3-Dipolar Cycloaddition Reactions of Benzonitrile Oxides with 5-Substituted Adamantan-2-thiones, *N*-benzyladamantyl-2-imines and 2-Methyleneadamantanes".

22. C,-M. Shu, **W.-S. Chung**,* S.-H. Wu, Z.-C. Ho and L.-G. Lin,* *J. Org. Chem.* **1999**, *64*, 2673. "Synthesis of Calix[4]arenes with four different "Lower Rim Substituents".

23. M. Kaselj; **W.-S. Chung** and W. J. le Noble,* *Chem. Rev.* **1999**, 99, 1387-1414 (May issue) "Face Selectivity in Addition and Elimination in Sterically Unbiased Systems".

24. M.-D. Su,* H.-Y. Liao, **W.-S. Chung*** and S.-Y. Chu,* *J. Org. Chem.* **1999**, *64*, 6710. "Gas-Phase Cycloadditions of 16-Electron 1,3-Dipoles with Ethylene. A Density Functional and CCSD(T) Study",.

25. J.-H. Liu, A.-T. Wu, M.-H. Huang, C.-W. Wu and **W.-S. Chung**,* *J. Org. Chem.* **2000**, *65*, 3395, "The Syntheses of Pyrazino-Containing Sultines and Their Application in Diels-Alder Reactions with Electron-Poor Olefins and [60]Fullerene".

26. C.-M. Shu, W.-L. Lin, G.-H. Lee, S.-M. Peng and **W.-S. Chung**,* *J. Chinese Chem. Soc.* **2000**, *47*, 173, "Calix[4]arenes with a Lid in their Upper Rims: 1,3-Dipolar Cycloaddition Reactions of Benzonitrile Oxides with 5-Allyl-, 5,11- and 5,17-Diallylcalix[4]arenes".

27. H.-Y. Liao, M.-D. Su,* **W.-S. Chung**, S.-Y. Chu, *Int. J. Quantum Chem*. **2001**, *83*, 318. "Density Functional Study of the Relative Reactivity in the Concerted 1,3-Dipolar Cycloaddition of Nitrile Ylide to Disubstituted Ethylenes".

28. A.-T. Wu, W.-D. Liu, and **W.-S. Chung**,* *J. Chinese Chem. Soc.* **2002**, *49*, 77, "The Synthesis of Naphthosultine and Benzodisultines and their Pyrolysis with Dienophiles: Studies on *o*-Naphthoquinodimethane and Bis-*o*-quinodimethane".

29. W.-D. Liu, C.-C. Chi, I.-F. Pai, A.-T. Wu, and **W.-S. Chung**,* *J. Org. Chem*. **2002**, *67*, 9267, "The Synthesis of 2,5-Disubstituted-thienosultines and their Thermal Reactions with Dienophiles and Nucleophiles".

30. W.-S. Li, **W.-S. Chung**,* and I. Chao,* *Chem. Eur. J.* **2003**, *9*, 951, "A Computational Study of Regioselectivity in a Cyclodextrin Mediated Diels-Alder Reaction: Revelation of the Importance of Shallow Binding and Multiple Binding Modes".

31. Chu, J.-H.; Li, W.-S.; Ito, C.;* **Chung, W.-S.*** *Tetrahedron*, **2004**, 60, 9493, "Face Selectivity in the Reactions of 2,4-Disubstituted Adamantanes and Their Modification by Inclusion in Beta-Cyclodextrin Solutions".

32. Chi, C.-C.; Pai, I.-F; **Chung**, **W.-S.*** *Tetrahedron*, **2004**, *60*, 10869, "Thermal and Microwave Assisted Diels-Alder Reactions of 2,5-Disubstituted Thienosultines with [60]Fullerene".

33. Tang, K.-C.; Lee, S.-J.; Chi, S.-H.; Lu, K.-L; Chen, W.-C.; Yu, C.-h.; Chen, I.-C.;* Wu, S.-L.; Chen, C.-C.; Liu, W.-D.; Chen, L.-J.; Wang, N.-S.* **Chung, W.-S**.* *J. Photochem. Photobiol. A*, **2005**, *170*, 69-81, "Photochemistry and Photodissociation of Benzosultine and Naphthosultine: Electronic Relaxation of Sultines and Kinetics and Theoretical Studies of Fragment *o*-Quninodimethanes"

34. Kao, T.-L.; Wang, C.-C.; Pan, Y.-T.; Shiao, Y.-J.; Yen, J.-Y.; Shu, C.-M.; Lee, G.-H.; Peng, S.-M.; **Chung, W.-S.*** *J. Org. Chem*. **2005**, *67*, 2912, "Upper Rim Allyl and Arylazo Coupled Calix[4]arenes as Highly Sensitive Chromogenic Sensors for Hg^{+2} Ion".

35. Chu, J.-H; Li, W.-S.; Chao, I.;* Lee, G.-H.; **Chung, W.-S.*** *Tetrahedron*, **2006,** *62***,** 7380-7389 "Regio Selectivity in the 1,3-Dipolar Cycloaddition of Adamantylidene- fulvene and Its Modification by Inclusion in Cyclodextrins Solutions".

36. Senthilvelan, A.; Lee, G.-H.; **Chung, W.-S.*** *Tetrahedron Lett.* **2006**, *47*, 7179-7183. "A Novel Photoinduced Ring Opening and Isomerization of Adamantane-2-spiroisoxazolines Using $Mo(CO)_6$",.

37. Shiao, Y.-J.; Chiang, P.-J.; Senthilvelan, A.; Tsai, M.-T.; Lee, G.-H.; **Chung, W.-S**.* *Tetrahedron Lett.* **2006**, *47*, 8383-8386. "Capping the upper and lower rims of calix[4]arenes by aryl dinitrile oxide reactions".

38. Senthilvelan, A.; Tsai, M.-T.; Chang, K.-C.; **Chung, W.-S.*** *Tetrahedron Lett.* **2006**, *47*, 9077-9081. "$Mo(CO)_6$-mediated synthesis of calix[4]arenes carrying beta-hydroxy ketones or alpha,beta-unsaturated-beta-amino ketones".

39. Ho, I-T.; Lee, G.-H.; **Chung, W.-S.*** "Synthesis of upper-rim allyl and *p*-methoxyphenylazocalix[4]arenes and their efficiencies in chromogenic sensing of Hg^{+2} Ion" *J. Org. Chem.* **2007**, 72, 2434.

40. Huang, C.-H.; Chang, Y.-H.; Lin, H.-K.; Pen, C.-W.; **Chung, W.-S.**; Lee, C.-Y.;* Chiu, H.-T.* "Phase Segregation Assisted Morphology Sculpting: Growth of Graphite and Silicon Crystals via Vapor-Solid Reactions", *J. Phys. Chem. C* **2007**, *111*, 4138.

41. Chang, K.-C.; Su, I.-H.; Senthilvelan, A.; **Chung, W.-S.*** "Triazole-Modified Calix[4]crown as a Novel Fluorescent On-Off Switchable Chemosensor", (NSC96-2113-M-009-011-MY3), *Org. Lett.* **2007**, *9*, 3363-3366, being highlighted in *Chem. Soc. Rev*. **2011**, *40*, 2848).

42. Chang, K.-C.; Su, I.-H.; Lee, G.-H.; **Chung, W.-S.*** "Triazole- and Azo-coupled Calix[4]arene as a Highly Sensitive Chromogenic Sensor for Ca^{2+} and Pb^{2+} Ions", (NSC96-2113-M-009-011-MY3), *Tetrahedron Lett.* **2007**, *48*, 7274-7278, (being highlighted in *Chem. Soc. Rev*. **2011**, *40*, 2848).

43. Chang, K.-C.; Luo, L.-Y.; Diau, E. W.-G.; **Chung, W.-S.*** "Highly Selective Sensing of Cu^{2+} Ion by an Arylisoxazole Modified Calix[4]arene", *Tetrahedron Lett.* **2008,** *49*, 5013-5016.

44. Hung, H.-C.; Cheng, C.-W.; Ho, I.-T.; **Chung, W.-S.*** "Dual-mode recognition of transition metal ions by bis-triazoles chained pyrenes", *Tetrahedron Lett.* **2009,** *50*, 302-305, (being highlighted in *Chem. Soc. Rev*. **2011**, *40*, 2848).

45. Senthilvelan, A.; Ho, I.-T.; Chang, K.-C.; Lee, G.-H.; Liu, Y.-H.; **Chung, W.-S.*** "Cooperative Recognition of a Copper Cation and Anion by a Calix[4]arene Substituted at the Lower Rim by a Beta-Amino-alpha,beta-Unsaturated Ketone", *Chem. Eur. J.* **2009**, *15*, 6152-6160.

46. Chen, Y.-J.; **Chung, W.-S.*** **'**Tetrazoles and *para*-Substituted-phenylazo Coupled Calix[4]arenes as Highly Sensitive Chromogenic sensors for Ca^{2+}**',** *Eur. J. Org. Chem.* **2009**, 4770-4776.

47. Hung, H.-C.; Cheng, C.-W.; Wang, Y.-Y.; Cheng, Y.-J.; **Chung, W.-S.*** "Highly Selective Fluorescence Sensors for Hg^{2+} and Ag^{+} Based on Bistriazole Coupled Polyoxyethylenes in MeOH Solution", *Eur. J. Org. Chem.* **2009**, 6360-6366, (being highlighted in *Chem. Soc. Rev*. **2011**, *40*, 2848).

48. Chen, Y.-J.; Hung, H.-C.; Sha, C.-K.*; Chung, W.-S.* "Photochemistry of Benzene and Quinoxaline Fused *Delta*^{2}-1,2,3-triazolines and Their Trapping Products", *Tetrahedron*, **2010**, *66*, 176-182.

49. Luo, J.; Shen, L.-C.; Chung, W.-S.* "Inherently Chiral Biscalix[4]arenes: Design and Syntheses", *J. Org. Chem.* **2010**, *74*, 464-467**.**

50. Chang, K.-C.; Su, I.-H.; Wang, Y.-Y.; Chung, W.-S.* "A Bifunctional Chromogenic Calix[4]arene Chemosensor for Both Cations and Anions: a Potential Ca^{2+} and F^{-} Switched INHIBIT Logic Gate with a YES Logic Function", *Eur. J. Org. Chem.* **2010**, 4700-4704.

51. Ho, I.-T.; Chu, J.-H.; **Chung, W.-S.*** "Calix[4]arenes with Lower-rim Beta- Amino-alpha, beta-Unsaturated Ketones Containing bis-Chelating Sites as a Highly Selective Fluorescence Turn-On Chemosensor for Cu(II) Ions", *Eur. J. Org. Chem*. **2011**, 1472-1481.

52. Chanda, K.; Maiti, B.; **Chung, W.-S.***, Sun, C.-M.* "Novel Approach towards 2-Substituted Aminobenzimidazoles on Imidazolium Ion Tag under Focused Microwave Irradiation", *Tetrahedron* **2011**, *67*, 6214-6220.

53. Wang, N.-J.; Sun, J.-M.*; **Chung, W.-S.*** "A specific and ratiometric chemosensor for Hg^{2+} based on triazole coupled *ortho*-methoxyphenylazocalix[4]arene", *Tetrahedron* **2011**, *67*, 8131-8139.

54. Ho, I.-T.; Haung, K.-C.; **Chung, W.-S.*** "1,3-Alternate Calix[4]arene as a Homobinuclear Ditopic Fluorescent Chemosensor for Ag^{+} Ions", An invited contribution to the special issue on 10^{th} Anniversary of Click Chemistry. *Chem. Asian J.* **2011,** *6*, 2738-2746.

55. Chiang, S.-Y.;* Lee, P.-Y.; Lai, M.-T.; Shen, L.-C.; **Chung, W.-S.**; Huang, H.-F.; Wu, K.-y.; Wu, H.-C. "Safrole-2',3'-oxide Induces Cytotoxic and Genotoxic Effects in HepG2 Cells and in Mice", *Mutat. Res. Gen. Tox. En.* **2011**, *726*, 234-241.

56. Shen, L.-C.; Chiang, S.-Y.; Ho, I-T.; Wu, K.-Y.*; **Chung, W.-S.*** "Synthesis and Characterization of Adducts Formed in the Reactions of Safrole-2',3'-oxide with 2'-Deoxyadenosine, Adenine, and Calf Thymus DNA", *Eur. J. Org. Chem*. **2012**, 792-800.

57. Tsai, C.-C.; Ho, I-T.; Chu, J.-H.; Shen, L.-C.; Huang, S.-L.; **Chung, W.-S.*** "Synthesis of 9,10-Bis-ketoenaminoanthryl and 9,10-Bis-isoxazolylanthryl Linked Biscalix[4]arenes: Atropisomers and Molecular Recognitions", *J. Org. Chem.* **2012**, *77*, 2254-2262.

58. Barve, I. J.; Chen, C.-Y.; Salunke, D. B.; **Chung, W.-S.***; Sun, C.-M.* "Design and Synthesis of New Biprivileged Molecular Scaffolds: Indolo-Fused Benzodiazepinyl/quinoxalinyl benzimidazoles", *Chem. Asian J.* **2012,** *7*, 1684-1690.

59. Shen, L.-C.; Chiang, S.-Y.; Lin, M.-H.; **Chung, W.-S.***; Wu, K.-Y.* "*In vivo* Formation of *N*7-Guanine DNA Adduct by Safrole 2',3'-oxide in Mice", Toxicol. Lett. **2012**, *213*, 309-315

60. Wang, N.-J.; Sun, J.-M.*; **Chung, W.-S.*** "A Highly Selective Fluorescent Chemosensor for Ag^{+} Based on Calix[4]arene with Lower-rim Proximal Triazolylpyrenes", Sensors & Actuators B **2012**, 171-172, 984-993.

61. Chung, T.-W. Chen, C.-H.; Lin, C.-C.;* Wu, H.-J.; Sun, C.-M.*; **Chung, W.-S.*** "Exploring a Sulfone Linker Utilizing Trimethyl Aluminum as a Cleavage Reagent: Solid-Phase Synthesis of Sulfonamides and Ureas", Mol. Divers **2012**, *16*, 463-476.

62. Ho, I-T.; Lai, T.-L.; Wu, T.-T.; Tsai, M.-T.; Wu, C.-M.; Lee, G.-H.; **Chung, W.-S.**[*], "Design and Synthesis of Triazolyl Coumarin as a Selective Fluorescent Chemosensor for Hg^{2+}", Analyst **2012**, *137*, 5770-5776.

63. Su, H.-L. Su; Lee, Y.-P.; Hung, H.-Y.; Lee, C.-Y.; **Chung, W.-S.**; Hsieh, Y.-Z., "Analysis of Calix[4]arenes Using Nonaqueous Capillary Electrophoresis", *J. Chin. Chem. Soc.* **2013**, *60*, 113-119.

64. Tsai, C.-C.; Chang, K.-C. ; Ho, I.-T.; Chu, J.-H.; Cheng, Y.-T.; Shen, L.-C.; **Chung, W.-S.***, "Evolution of Nano- to Microsized Spherical Assemblies of Fluorogenic Biscalix[4]arenes into Supramolecular Organogels", *Chem. Commun*. **2013**, *49*, 3037-3039.

65. Tsai, C.-C.; Cheng, Y.-T.; Shen, L.-C.; Chang, K.-C.; Ho, I.-T.; Chu, J.-H.; **Chung, W.-S.***, "Biscalix[4]arene Derivatives As a Very Efficient Phase Selective Gelator for Oil Spill Recovery", *Org. Lett*. **2013**, *15*, 5830-5833.

66. Chang, Y.-Y.; Ho, I.-T.; Ho, T.-L.*; **Chung, W.-S**.* "The Synthesis of Rigid Polycyclic Structures for the Study of Diatropic or Steric Effects of a Phenyl Ring on CF Bond", *J. Org. Chem.* **2013**, *78*, 12790-12794.

67 Hung, H.-C.; Chang, Y.-Y.; Luo, L.; Hung, C.-H.; Diau, E. W.-G.*; **Chung, W.-S.*** "Different Sensing Modes of Fluoride and Acetate Based on a Calix[4]arene with 25,27-Bistriazolylmethylpyrenylacetamides", *Photochem. Photobiol. Sci*. **2014**, *13*, 370-379.

68. Chang, Y.-Y.; Ho, T.-L.;* Chung, W.-S.* "Deformative Transition of Menschutkin Reaction and Helical Atropisomers in a Congested Polyheterocyclic System", *J. Org. Chem.* **2014**, *79*, 9970-9978.

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71. Chen, Y.-J.; Yang, S.-C.; Tsai, C.-C.; Chang, K.-C.; Chuang, W.-H.; Chu, W.-L.; Kovalev, V.; **Chung, W.-S.***, "Anthryl-1,2,4- oxadiazole substituted calix[4]arenes as highly selective fluorescent chemodosimeters for Fe^{3+}", *Chem. Asian. J.*, **2015**, *10*, 1025-1034.

72. Luo, Y.S.; Tsai, H.-Y.; Chen, H.-C.; Wu, C.; Shen, L.-C.; Chung, W.-S.; Chiang, S.-Y.*; Wu, K.-Y.*, "Study of urinary 2-[2-(acetylamino)-2-(carboxyethyl)sulfanyl]butanoic acid, a mercapturic acid of rats treated with maleic acid", *Toxicol. Lett.* **2015**, *236*, 131-137.

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74. Lee, C.-H.; Wu, W.-C.; Dangate, P. S.; Shen, L.-C.; **Chung, W.-S.***; Sun, C.-M.*, "Skeletally Diverse Synthesis of Innovative [2,1‑c]‑1,4-Oxazepine and [1,4]-Quinoxaline Systems", *ACS Comb. Sci.* **2015**, *17*, 623-630.

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