

# Kelvin Huang-Chou Chen

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## Education:

Ph.D., Chemistry *Biochemistry and Biophysical Chemistry*

National Tsing Hua University, Taiwan

Research Advisor: Professor Sunney I. Chan

(Emeritus Professor, Caltech)

## Employment:

**Professor and Dean of Office of National Affairs.**

Department of Applied Chemistry

National Pingtung University

Research Interest: Inorganic Biochemistry and Protein Science

### **Distinguished Postdoctoral Scholar**

Institute of Chemistry, Academia Sinica, Taiwan

Research Topic: The X-ray Crystallography Studies of the Particulate  
Methane Monooxygenase from *Methylococcus capsulatus*  
(Bath).

### **Postdoctoral Researcher**

Department of Biochemistry, The Ohio State University, USA

Research Topic: Protein Crystallography and Structure Biology.

## Publication:

1. Gilbert Audira, Jong-Chin Huang, Kelvin H-C Chen, Kevin Adi Kurnia, Ross D Vasquez, Marri Jmelou M Roldan, Yu-Heng Lai, Chung-Der Hsiao, Cheng-Yo Yen. A comprehensive painkillers screening by assessing zebrafish behaviors after caudal fin amputation. *Biomed Pharmacother.* (2023) 168, 115641.
2. Vladimir Mironov, Irina A Shchugoreva, Polina V Artyushenko, Dmitry Morozov, Nicola Borbone, Giorgia Oliviero, Tatiana N Zamay, Roman V Moryachkov, Olga S Kolovskaya, Kirill A Lukyanenko, Yangling Song, Iuliia A Merkulova, Vladimir N Zabluda, Georgy Peters, Lyudmila S Koroleva, Dmitry V Veprintsev, Yury E Glazyrin, Ekaterina A Volosnikova, Svetlana V Belenkaya, Tatiana I Esina, Anastasiya A Isaeva, Valentina S Nesmeyanova, Daniil V Shanshin, Anna N Berlina, Nadezhda S Komova, Valery A Svetlichnyi, Vladimir N Silnikov, Dmitriy N Shcherbakov, Galina S Zamay, Sergey S Zamay, Tatyana Smolyarova, Elena P Tikhonova, Kelvin H-C Chen, U-Ser Jeng, Gerolama Condorelli, Vittorio de Franciscis, Gerrit Groenhof, Chaoyong Yang, Alexander A Moskovsky, Dmitri G Fedorov, Felix N Tomilin, Weihong Tan, Yuri Alexeev, Maxim V Berezovski, Anna S Kichkailo. Structure and Interaction Based Design of Anti-SARS-CoV-2 Aptamers. *Chemistry-A European Journal.* (2022) doi: 10.1002/chem.202104481.
3. Gilbert Audira, Jiann-Shing Lee, Petrus Siregar, Nemi Malhotra, Marri Jmelou M. Rolden, Jong-Chin Huang, **Kelvin H.-C. Chen**, Hua-Shu Hsu, Yuchun Hsu, Tzong-Rong Ger and Chung-Der Hsiao\*. Comparison of the Chronic Toxicities of Graphene and Graphene Oxide Toward Adult Zebrafish by Using Biochemical and Phenomic Approaches. (2021) *Environmental Pollution*, 278, 116907 (SCI; Impact Factor:6.792, Co-author).
4. Sunney I. Chan\* Phimonphan Chuankhayan, Pavan Kumar Reddy Nareddy, I-Kuen Tsai, Yi-Fang Tsai, **Kelvin H.-C. Chen**, Steve S.-F. Yu\* and Chun-Jung Chen\*. Mechanism of Pyrroloquinoline Quinone-Dependent Hydride Transfer Chemistry from Spectroscopic and High-Resolution X-ray Structural Studies of the Methanol Dehydrogenase from *Methylococcus capsulatus* (Bath). (2021) *J. Am. Chem.*

- Soc.*, 143, 9, 3359-3372. <https://doi.org/10.1021/jacs.0c11414>. (SCI; Impact Factor: 14.612, Co-author).
5. Chung-Der Hsiao, Hsin-Hui Wu, Nemi Malhotra, Yen-Ching Liu, Ying-Hsuan Wu, Yu-Nung Lin, Ferry Saputra, Fiorency Santoso and **Kelvin H.-C. Chen\***. Expression and Purification of Recombinant GHK Tripeptides Are Able to Protect against Acute Cardiotoxicity from Exposure to Waterborne-Copper in Zebrafish. (2020) *Biomolecules*, 10, 1202, 1-17. doi:10.3390/biom10091202 (SCI; Impact Factor: 4.879, Corresponding author).
  6. Nemi Malhotra, Tzong-Rong Ger, Boontida Uapipatanakul, Jong-Chin Huang, **Kelvin H.-C. Chen\***, and Chung-Der Hsiao\*. Review of Copper and Copper Nanoparticle Toxicity to Fish. (2020) *Nanomaterials*, 10, 1126, 1-28. (SCI; Impact Factor: 5.076, Co-corresponding author).
  7. Tsun-Ren Chen\*, Yi-Sheng Lin, Yu-Xiang Wang, Wen-Jen Lee, **Kelvin H.-C. Chen** and Jhy-Der Chen. Graphene oxide–iridium nanocatalyst for the transformation of benzylic alcohols into carbonyl compounds (2020) *RSC Advances*, 10, 4436-4450. (SCI; Impact Factor: 3.049)
  8. Tsun-Ren Chen\*, Yu-Xiang Wang, Wen-Jen Lee, **Kelvin H.-C. Chen** and Jhy-Der Chen. A reduced graphene oxide-supported iridium nanocatalyst for selective transformation of alcohols into carbonyl compounds via a green process. (2020) *Nanotechnology*, 31, 285705-285715. (SCI; Impact Factor: 3.399)
  9. **Kelvin H.-C. Chen\***, Hui-Chuan Wei, Ai-Tzu Li, Wei-Ni Wang and Yu-Hsien Liao. The Supreme-core on Multicriteria Fuzzy Games. (2020) *Journal of Intelligent & Fuzzy Systems*, 38, 2, 1753-1760. (SCI; Impact Factor: 1.637, Corresponding and first author)
  10. Yu-Jhang Lu, Mu-Cheng Hung, Brian T.-A. Chang, Tsu-Lin Lee, Zhi-Han Lin, I-Kuen Tsai, Yao-Sheng Chen, Chin-Shuo Chang, Yi-Fang Tsai, **Kelvin H.-C. Chen**, Sunney I. Chan, Steve S.-F. Yu\*. The PmoB subunit of particulate methane monooxygenase (pMMO) in *Methylococcus capsulatus* (Bath): The Cu<sup>I</sup> sponge and its function (2019) *J. Inorg. Biochem.*, 196, Article 110691. (SCI; Impact Factor: 3.224)
  11. Kenneth Y.-T. Lim, **Kelvin H.-C. Chen**, Sheau-Wen Lin, Jong-Chin Huang, Kristal S.-E., Ng, Joel J.- L. Ng, Yifei Wang, Nicholas Woong. Representations of

Novice Conceptions with Learner-Generated Augmentation: A Framework for Curriculum Design with Augmented Reality. (2018) *Journal of Virtual World Research* 11, 3, Pedagogy (Part 1).

12. Tsun-Ren Chen\*, Pei-Chun Liu, Hsiu-Pen Lee, Fang-Siou Wu, **Kelvin H.-C. Chen**. Cyclometalated Iridium (III) complexes with ligand effect on catalytic carbon hydrogen bond activation of toluene in high performance. (2017) *Euro. J. Inorg. Chem.* 13, 2023-2031. (SCI; Impact Factor: 2.686)
13. Yi-Ting Chen, **Kelvin H.-C. Chen**, Mituhiro Fukuda\*. DFT study for evaluation of the interaction of coordinated molecule to Fe(III) in various iron(III) chloride complexes. (2016) *J. Comp. Chem., Japan*.
14. Tsun-Ren Chen\*, Fang-Siou Wu, Hsiu-Pen Lee, **Kelvin H.-C. Chen**. Diiridium bimetallic complexes function as a redox switch to directly split carbonate into carbon monoxide and oxygen. (2016) *J. Am. Chem. Soc.*, 138, 3643-3646. (SCI; Impact Factor: 12.113)
15. **Kelvin H.-C. Chen\***, Phimonphan Chuankhayan, Hsin-Hui Wu, Chun-Jung Chen\*, Mitsuhiro Fukuda, Steve S.-F. Yu, Sunney I. Chan. The bacteriohemerythrin from *Methylococcus capsulatus* (Bath): Crystal structures reveal that Leu114 regulates a water tunnel. (2015) *J. Inorg. Biochem.*, 150, 81-89. (SCI; Impact Factor: 3.444, Co-corresponding and co-first author)
16. **Kelvin H.-C. Chen\***, Hsin-Hui Wu, Si-Fu Ke, Ya-Ting Rao, Chia-Ming Tu, Yu-Ping Chen, Kuo-Hsuan Kuei, Ying-Siao Chen, Vincent C.-C. Wang, Wei-Chun Kao, Sunney I. Chan. Bacteriohemerythrin bolsters the activity of the particulate methane monooxygenase (pMMO) in *Methylococcus capsulatus* (Bath). (2012) *J. Inorg. Biochem.*, 111, 10-17. (SCI; Impact Factor: 3.317, Corresponding and first author, Times Cited = 11).
17. Sunney I. Chan\*, Hiep Hoa T. Nguyen, **Kelvin H.-C. Chen** and Steve S.-F. Yu. Over-expression and purification of the Particulate Methane Monooxygenase (pMMO) from *Methylococcus capsulatus* (Bath). (2011) *Methods in Enzymology*, 495, 177-193. (SCI, Impact Factor: 2.002, Times Cited = 5)
18. Tsun-Ren Chen\*, Hsiu-Pen Lee, Jhy-Der Chen, **Kelvin H.-C. Chen** (2010) An 18+d iridium dimer releasing metalloradicals spontaneously. *Dalton Trans.*, 39,

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19. Hsiu-Pen Lee, Yi-Fen Hsu, Tsun-Ren Chen\*, Jhy-Der Chen, **Kelvin H.-C. Chen**, Ju-Chun Wang. (2009) A Novel Cyclometalated Dimeric Iridium Complex, [(dfpbo)(2) Ir](2) [dfpbo = 2-(3,5-Difluorophenyl)]. *Inorg. Chem.*, 48, 4, 1263-1265. (SCI, Impact Factor: 4.657, Times Cited = 11)
20. **Kelvin H.-C. Chen\***, Sunney I. Chan. (2007) The Structure Biology Studies of Metallic Membrane Protein: Particulate Methane Monooxygenase from *Methylococcus capsulatus* (Bath), *National Synchrotron Radiation Research Center User's Research Report*, II-121.
21. Steve S.-F. Yu, Cheng-Zhi Ji, Ya-Ping Wu, Tsu-Lin Lee, Chien-Hung Lai, Su-Ching Lin, Zong-Lin Yang, Vincent C.-C Wang, **Kelvin H.-C. Chen**, Sunney I. Chan\*. (2007) The C-Terminal Aqueous-Exposed Domain of the 45 kDa Subunit of the Particulate Methane Monooxygenase (pMMO) in *Methylococcus capsulatus* (Bath) is a Cu(I) Sponge. *Biochemistry*, 46, 13762-13774. (SCI, Impact Factor: 3.015, Times Cited = 16)
22. Sunney I. Chan\*, Vincent C.-C. Wang, Jeff C.-H. Lai, Steve S.-F. Yu, Peter P.-Y. Chen, **Kelvin H.-C. Chen**, Chang-Li Chen, Michael K. Chan. (2007) Redox Potentiometric Studies of the Particulate Methane Monooxygenase: Support for a Trinuclear Copper Cluster Active Site. *Angew. Chem. Int. Ed.* 46, 12, 1992-1994. (SCI, Impact Factor: 11.261, Times Cited = 77)
23. Steve S.-F. Yu, **Kelvin H.-C. Chen**, Cheng-Zhi Ji, Chu-Lin Lee, Chien-Hung Lai, Zong-Lin Yang, Sunney I. Chan. (2006) The XAS Studies of the Copper Ions in the Aqueous-exposed Domains of the 45 kDa Subunit of Particulate Methane Monooxygenase. *National Synchrotron Radiation Research Center Activity Report* 2006/2007, II, 207.
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25. Sunney I. Chan\*, **Kelvin H.-C. Chen**, Steve S.-F. Yu, Chang-Li Chen, Simon S.-J. Kuo. (2004) Toward Delineating the Structure and Function of the Particulate Methane Monooxygenase (pMMO) from Methanotrophic Bacteria. *Biochemistry*,

43, 15, 4421-4430. (SCI, Impact Factor: 3.015, Times Cited = 93)

26. **Kelvin H.-C. Chen**, Chang-Li Chen, Chiu-Fou Tseng, Steve S.-F. Yu, Shyue Chu Ke, Jyh-Fu Lee, Hiep Hoa T. Nguyen, Sean J. Elliott, James O. Alben, Sunney I. Chan\*. (2004) The Copper Clusters in the Particulate Methane Monooxygenase (pMMO) from *Methylococcus capsulatus* (Bath). *J. Chin. Chem. Soc.*, 51, 5B, 1081-1098 Feature Article. (SCI, Times Cited = 37)
27. Madhuri S. Vinchurkar, **Kelvin H.-C. Chen**, Yu-Heng Tseng, Steve S.-F. Yu, Hui-Chi Chiu, Shu-Hua Chien and Sunney I. Chan\*. (2004) Polarized ATR-FTIR Spectroscopy of the Membrane-Embedded Domains of the Particulate Methane Monooxygenase. *Biochemistry*, 43, 42, 13283-13292. (SCI, Impact Factor: 3.015, Times Cited = 15)
28. Chang-Li Chen, **Kelvin H.-C. Chen**, Shyue Chu Ke, Steve S.-F. Yu, Sunney I. Chan\*. (2004) Preparation and characterization of a (Cu,Zn)-pMMO from *Methylococcus capsulatus* (Bath). *J. Inorg. Biochem.*, 98, 12, 2125-2130. (SCI, Impact Factor: 3.444, Times Cited = 7)
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30. Svitlana V. Pavlova, **Kelvin H.-C. Chen**, Sunney I. Chan\*. (2004) Spectroscopic Characterization of the Oxotransfer Reaction from bis-( $\mu$ -oxo) Dicopper (III) Complex to Triphenylphosphine. *Dalton Trans.*, 21, 20, 3261-3272. (SCI, Times Cited = 5)
31. Shao-Ching Hung, Chang-Li Chen, **Kelvin H.-C. Chen**, Steve S.-F. Yu, Sunney I. Chan\*. (2004) The Trinuclear Copper (II) Clusters of the Particulate Methane Monooxygenase from Methanotrophic Bacteria: Electron Paramagnetic Resonance Spectral Simulations. *J. Chin. Chem. Soc.*, 51, 5B, 1229-1244. (SCI, Times Cited = 24)
32. Steve S.-F. Yu, **Kelvin H.-C. Chen**, Mandy Y.-H. Tseng, Yane-Shih Wang, Chiu-Feng Tseng, Yu-Ju Chen, Ded-Shih Huang\*, Sunney I. Chan\*. (2003) Production of High Quality pMMO in High Yields from *Methylococcus capsulatus* (Bath) with a

Hollow-Fiber Membrane Bioreactor. *J. Bacteriol.*, 185, 20, 5915-5924. (SCI, Impact Factor: 2.808, Times Cited = 70).

33. Steve S.-F. Yu, Lo-Ying Wu, **Kelvin H.-C. Chen**, Wen-I Luo, Ded-Shih Huang, and Sunney I. Chan\*. (2003) The Stereospecific Hydroxylation of [2-2H<sub>2</sub>] butane and Chiral Deuterated Butanes by the Particulate Methane Monooxygenase from *Methylococcus capsulatus* (Bath). *J. Biol. Chem.*, 278, 42, 40658-40669. (SCI, Impact Factor: 4.573, Times Cited = 35) 2020 擔任 *Environmental Science and Pollution Research* (IF=3.056).