

Prof. Chun-Hu Chen

Department of Chemistry, National Sun Yat-Sen University (70 Lienhai Rd., Kaohsiung 80424, Taiwan)



Office: CH 5007

Tel: +886 7 525 2000 # 3943

E-mail: chunhu.chen@mail.nsysu.edu.tw

Website: <https://chclab-chem.nsysu.edu.tw/app/index.php?Lang=en>

Areas of Expertise:

- Energy materials for water oxidation/splitting
- Oxygen reduction catalysts in fuel cells
- Graphene material preparation and functionalization
- Graphene-metal oxide nanocomposites
- Multicomponent metal oxide coating and nanomaterials
- Electrocatalysis/electrochemical biosensors
- Photocatalysis
- Photo-coupled electrocatalysis
- Heterojunction interface study and engineering
- Hybrid functional materials
- New, green synthetic strategy for materials
- Bio-imaging materials
- Surface-enhanced Raman Scattering
- Small molecular catalysis

Education

Ph.D.	2010	Chemistry	University of Connecticut, Storrs, CT, USA
M.S.	2002	Chemistry	National Chung Cheng University, Chyayi, Taiwan
B.S.	2000	Chemistry	Soochow University, Taipei, Taiwan

Appointments

2020-	Professor, National Sun Yat-sen University, Kaohsiung, Taiwan
2018-2019	Visiting scholar, Northwestern University, Evanston, USA
2016-	Associate Professor, National Sun Yat-sen University, Kaohsiung, Taiwan
2012-2016	Assistant Professor, National Sun Yat-sen University, Kaohsiung, Taiwan

2010-2012 Postdoctoral Associate, The Ohio State University, Columbus, OH, USA
2005 Research Assistant, Academia Sinica, Taipei, Taiwan

International Scientific Publication

- 60+ peer-reviewed journal papers
- 3800+ total citations

Honors and Awards

- Outstanding New Faculty Award, 2012
- Young Faculty Award of Industrial Collaboration, 2015
- Excellent Research Award NSYSU, 2015/2016/2017/2018/2019/2020/2021
- Excellent Teaching Award, NSYSU, 2015
- Award of Industrial Collaboration, 2019
- Excellence Award of Industrial Collaboration 2021
- Innovative Young Scholar Award, Taiwan Comprehensive University System, 2020
- Award of Outstanding Young Scholar, Taiwan Carbon Society, 2021
- **Gold Medal**, America's Science and Invention Expo 2021 Title: *Electrocatalysts for High Current Alkaline Water Splitting*
- **Gold Medal**, International Warsaw Invention 2021 Title: *Electrocatalysts for High Current Alkaline Water Splitting*
- **Special Award**, Toronto International Society of Innovation and Advanced Skills 2021 Title: *Electrocatalysts for High Current Alkaline Water Splitting*
- **Silver Medal**, America's Science and Invention Expo 2021 Title: *High Resolution Photolithography by Photosensitive Silver Pastes*
- **Gold Medal**, International Warsaw Invention 2021 Title: *High Resolution Photolithography by Photosensitive Silver Pastes*

External Professional Services

- Guest editor:

Special issue for Chemistry (化學) (CCS, 2017) "New generation carbon composites for modern technology and environmental challenges"

Societies and conferences

- Vice President (2020)
- Member of advisory committee (2017)
 - Carbon Society of Taiwan 2017
- Symposium/conference organizer/leader:

- Primary host, The 15th Cross-strait Carbon Materials Symposium (Sep. 2017), Taiwan
- Reviewer for international journals and funding proposals

Administration Services

- Member of committee:
 - Chemistry Department Assessment committee 2016
 - Chemistry Department, Core Operation Member of event “Chemistry Day” 2020, 2021
 - Graduate program admission of Chemistry Department 2012-2016
 - Elite Scientist Program of Kaohsiung Senior High School (Advisory Board) 2012, 2013, 1015
 - Academic curriculum committee 2016-2022
 - Patent evaluation committee board 2014, 2022
 - College of Science, General Committee 2018-2022
 - NSYSU Radiation Safety Committee 2021-
 - NSYSU New Startup Funding Committee 2021
 - NSYSU High School Micro Teaching 2020, 2021
 -

International Collaboration

- Philippine:
 - Research projects supported by the funding of New Southbound Research Alliance Program, 2018-2019 Ministry of Education (MOE)
 - Participants: hosting 1 PhD and 2 Master students (until July, 2019), Department of Chemistry, De La Salle University
 - Core members of TW-PH CARE Program
- USA:
 - Research collaboration projects supported by MOST
 - Participants: 1 PhD (until July, 2019), Department of Chemistry, University of Connecticut
 -

Industry Activity

- Collaboration company:
 - Ike Co. (Taiwan)
 - Ample Co. (Taiwan)
 - Industrial Technology Research Institute (Taiwan)

- CPC Corp. Taiwan
- Formosa Plastics Group (Taiwan)
- JYD Technology Co. (金亞典)
-

Outreach

- University-High school Micro Teaching Program
 - Lecture 2020-2021

Committee Service

- University Committee
 - College of Science
 - Chemical and Radiation Security Board 2018-2021
- Faculty Recruitment Review Committee 2018-2021
- Yong Talent Student Program Review Committee 2019

Invited talks

Over 50 plenary, keynote and invited talks at conferences, workshops and academic, industry and government research institutes.

- [Keynote Speaker] 33rd Philippine Chemistry Congress 2018
Manila, Philippines, May 2018
Title: *New Functional Nanocomposites for Clean Energy Technology*
- [Keynote Speaker] Advances and Innovations in Materials Science 2018
Manila, Philippines, Feb. 2018
Title: *Graphene and Metal Oxide Hybridization for Oxygen Reduction and Evolution*
- [Keynote Speaker] International Conference on Chemistry and Material Science
Indonesia, Malang, Nov. 2017
Title: *Graphene in Photocatalysis and Composites for Electrocatalytic Oxygen Reduction and Bioinspiring*
- [Invited Talk] Chinese Chemical Society Conference 2017
Chiayi, Taiwan, Dec. 2017
Title: *Redox-assisted Multicomponent Deposition of Ultrathin Amorphous Metal Oxides on Arbitrary Substrates for Efficient Oxygen Evolution.*
- [Keynote Speaker] 5th Taiwan Carbon Material Conference 2021
Yilan, Taiwan, Nov. 2021
Title: *Spherical Crumpled Graphene: Formation Mechanism and Applications*

Publication

1. Zegeye, T. A.; Chen, W.-T.; Hsu, C.-C.; Valinton, J. A. A.; **Chen, C.-H.*** Activation Energy Assessing Potential-Dependent Activities and Site Reconstruction for Oxygen Evolution. *ACS Energy Lett* 7, 2236-2243 (2022)
2. Valinton, J. A. A.; Chung, M.-C.; **Chen, C.-H.*** Laser-Accelerated Mass Transport in Oxygen Reduction Via a Graphene-Supported Silver–Iron Oxide Heterojunction *J. Phys. Chem. Lett.* 13, 4200-4206 (2022)
3. Lin, C.-X.; Tang, W.-R.; Tseng, L.-T.; Valinton, J. A. A.; Tsai, C.-H.; Kurniawan, A.; Chiou, K.; **Chen, C.-H.*** Enhanced Thermal Conducting Behavior of Pressurized Graphene-Silver Flake Composites *Langmuir In press* 38, 727–734 (2022) **(Cover highlight of the issue)**
4. Yeh, C.-H.; Hsu, W.-Y.; Hsu, C.-C.; Valinton, J. A. A.; Yang, C.-I.; Chiu, C.-C.*; **Chen, C.-H.*** Cobalt Iron Oxides Prepared by Acidic Redox-Assisted Precipitation: Characterization, Applications, and New Opportunities *ACS Appl. Mater. Interfaces* 13, 52181–52192 (2021)
5. **Chen, C.-H.***; Huang, C.-W.; Cheng, N. -W.; Jhang, R. -H.; Yen T. -H.; Hung, Y. -J. Highly-oxidized graphene oxide for achieving low-loss hybrid waveguide gratings on SOI *IEEE J. Sel. Top. Quantum Electron.* 28, 8200209 (2021)
6. Chang, Y.-P.*; Yanita Devi, Y.; **Chen, C.-H.*** Micro-droplet Trapping and Manipulation: Understanding Aerosol Better for a Healthier Environment *Chem. Asian, J.* 16, 1644-4660 (2021)
7. Liao, P.-C.; Jhang, R.-H.; Chiu, Y.-H.; Valinton, J.A.A.; Yeh, C.-H. Ebajo, Jr. V.D.; Wang, C.-H.; **Chen, C.-H.*** Rock Salt Oxide Hollow Spheres Achieving Durable Performance in Bifunctional Oxygen Energy Cells *ACS Appl. Energy Mater.* 4, 3448-3459 (2021)
8. Lan, J.-C.; Qiao, J.; Sung, W.-H.; **Chen, C.-H.***; Jhang, R.-H.; Lin, S.-H.; Liang, G.; Wu, M.-Y.; Tu, L.-W.; Cheng, C.-M.; Liu, H.*; Lee, C.-K.* Role of carrier-transfer in the optical nonlinearity of graphene/Bi₂Te₃ heterojunctions *Nanoscale* 12, 16956-16966 (2020)
9. Chang, C.-J.; Liu, C.-A.; Pu, Y.-H.; Yang, T.-Y.; Chiu, H.-T.; **Chen, C.-H.***; Huang, G.* Gold Nanoparticles Grown by Galvanic Replacement on Graphene-Coated Aluminum Panels as Large-Area Substrates for Surface-Enhanced Raman Scattering *ACS Appl. Nano Mater.* 3, 5783-5793 (2020).
10. Shih, M.-C.; Jhang, R.-H.; Tsai, Y.-T.; Huang, C.-W.; Hung, Y.-J.; Liao, M.-Y.; Huang, J.*; **Chen, C.-H.*** Discontinuity-enhanced Thin Film Electrocatalytic Oxygen Evolution *Small*, 15, 1903363 (2019). SCI Ranking Top 6.7%, I.F.=10.9