Chanon Pornrungroj, PhD

H-index: 13 | Citations: 1530

Lecturer (tenure track), Department of Chemical Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, 10330, Thailand

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Work Experiences

7/2024-PRESENT	**ASSIST. DEAN, FACULTY OF ENGINEERING, CHULALONGKORN UNIVERSITY**	**BANGKOK, TH**
2/2024-PRESENT	**LECTURER (TENURE TRACK), CHEMICAL ENGINEERING, CHULALONGKORN UNIVERSITY**	**BANGKOK, TH**
4/2023-11/2023	**POSTDOCTORAL RESEARCHER, CHEMICAL ENGINEERING, CHULALONGKORN UNIVERSITY**	**BANGKOK, TH**
2018-2020	**ACADEMIC DEMONSTRATOR, DEPARTMENT OF CHEMISTRY, CAMBRIDGE UNIVERSITY**	**CAMBRIDGE, UK**
AUTUMN 2016	**VISITING RESEARCHER, DEPARTMENT OF PHYSICS, GEORGETOWN UNIVERSITY** Work under the supervision of Dr. E. V. Keuran to develop MRI contrast agent.	**WASHINGTON,D.C.**

Education and Qualifications

9/2018-4/2023	**PHD DEGREE IN CHEMISTRY, DEPARTMENT OF CHEMISTRY, UNIVERSITY OF CAMBRIDGE** Advisor: Prof. Erwin Reisner | Topic: "Enhancing solar fuel synthesis via complementary approaches: round-the-clock operation and heat utilisation"	**CAMBRIDGE, UK**
10/2017-8/2018	**RESEARCH STUDENT, IMRAM, TOHOKU UNIVERSITY**	**SENDAI, JAPAN**
10/2015-9/2017	**MASTER'S DEGREE , GRADUATE SCHOOL OF SCIENCE, TOHOKU UNIVERSITY (GPA 3.79)** Advisor: Prof. Hidetoshi Oikawa | Topic: "Photocatalytic functions of organic hybridised nanocrystal" (including 3 months Research Internship at Georgetown University, Washington, DC)	**SENDAI, JAPAN**
10/2011-9/2015	**BACHELOR'S DEGREE, ADVANCED MOLECULAR CHEMISTRY, TOHOKU UNIVERSITY (GPA 3.67)**	**SENDAI, JAPAN**

Honours & Awards

2018-2023	**SCHOLARSHIP RECIPIENT, UNIVERSITY OF CAMBRIDGE** Cambridge Trust, and Trinity Henry-Barlow Scholarship	**CAMBRIDGE, UK**
2011-2017	**SCHOLARSHIP RECIPIENT, TOHOKU UNIVERSITY** 2011-2015: Advanced Molecular Chemistry Global 30 Scholarship (MEXT) 2015-2017: Program for Multi-dimensional Material Science Leaders (MEXT)	**SENDAI, JAPAN**
2016	**JSAP YOUNG SCIENTIST PRESENTATION AWARD**	**YOKOHAMA, JAPAN**

Principal Investigator Grants (external grants only)

-**Source**: Royal Academy of Engineering, UK | **Title**: Circular Hybrid Electrolyser Platform for Green Hydrogen Production from Food-Waste-Derived Bioethanol | **Value**: 860,000 THB | **Duration**: 10/2025-09/2026.
-**Source**: Royal Academy of Engineering, UK | **Title**: Advancing Energy Storage Solutions for Sustainable Energy Transitions in Thailand | **Value**: 430,000 THB | **Duration**: 02/2025-01/2026.
-**Source**: Asahi Glass Foundation, Japan | **Title**: Development of a High-Efficiency LED-Powered Photocatalytic System for CO_2 Reduction to Formate | **Value**: 230,000 THB | **Duration**: 2025-2027

Area of Expertise

-**Advanced Energy Storage Solutions**: Specialized in chemical energy storage, including hydrogen production via solar energy and large-scale battery systems for utility applications.
-**Solar materials & solar energy conversion:** Expertise in cutting-edge solar materials and technologies for optimized solar-to-energy conversion
-**Electrification of chemical processes:** integrating electrification strategies within chemical processes such as ammonia synthesis to enhance efficiency and reduce environmental impact.
-**Carbon Accounting & Life Cycle Assessment (LCA)**

List of Peer-Reviewed Publications (Past 5 years)

1. Q. Wang*, C. Pornrungroj*, “Artificial photosynthetic processes using carbon dioxide, water and sunlight: can they power a sustainable future?”, *Chem. Sci.*, 2025, 10.1039/D5SC03976B

2. P. Marbaniang, S. Ingavale, W. Yoopensuk, W. Limphirat, H. Wu, W. Tolek, W. Yospanya, J. Panpranot, Q. Wang, S. Kheawhom, C. Pornrungroj*, “Binder-Free Nickel Borate/Nickel Hydroxide Bifunctional Catalyst for Coupled Nitrate Reduction and Glycerol Oxidation Toward Sustainable Ammonia Production”, *ACS Appl. Mater. Interfaces*, **17**, 52010-52023 (2025). https://doi.org/10.1021/acsami.5c09453

3. S. J. Cobb,† C. Pornrungroj,† V. Andrei, V. M. Badiani, L. Su, R. R. Manuel, I. A. C. Pereira, E. Reisner, "A photoelectrochemical-thermoelectric device for semi-artificial CO_2 fixation employing full solar spectrum utilization”, *Device*, **2**, 100505 (2024). https://doi.org/10.1016/j.device.2024.100505

4. S. Ingavale, M. Gopalakrishnan, C. M. Enoch, C. Pornrungroj, M. Rittiruam, S. Praserthdam, A. Somwangthanaroj, K. Nootong, R. Pornprasertsuk, S. Kheawhom, “Strategic design and insights into lanthanum and strontium perovskite oxides for oxygen reduction and oxygen evolution reactions”. *Small* **20**, 2308443 (2024). https://doi.org/10.1002/smll.202308443.

5. C. Pornrungroj,† A. B. M. Annuar,† Q. Wang, M. Rahaman, S. Bhattacharjee, V. Andrei, E. Reisner, "Hybrid photothermal–photocatalyst sheets for solar-driven overall water splitting coupled to water purification", *Nat. Water;* **1**, 952-960 (2023).

6. S. Bhattacharjee,† C. Guo,† E. Lam, J. M. Holstein M. R. Pereira, C. M. Pichler, C. Pornrungroj, M. Rahaman, T. Uekert, F. Hollfelder, E. Reisner, "Chemoenzymatic photoreforming: A sustainable approach for solar-fuel generation from plastic feedstocks", *J. Am. Chem. Soc.* **145**, 20355-20364 (2023).

7. C. Pornrungroj,† V. Andrei,† E. Reisner, "Thermoelectric-photoelectrochemical water splitting under concentrated solar irradiation", *J. Am. Chem. Soc.*; **145**, 13709-13714 (2023).

8. M. Rahaman, V. Andrei, D. S. Wright, E. Lam, C. Pornrungroj, S. Bhattacharjee, C. M. Pichler, H. F. Greer, J. J. Baumberg, E. Reisner, "Solar-driven liquid multicarbon fuel production using a standalone perovskite-$BiVO_4$ artificial leaf", *Nature Energy*; **8**, 629-638 (2023).

9. S. Bhattacharjee,† M. Rahaman,† V. Andrei, M. Miller, S. Rodríguez-Jiménez, E. Lam, C. Pornrungroj, E. Reisner, "Solar-driven plastic reforming with CO_2-to-fuel conversion", *Nature Synthesis*; **2**, 182-192 (2023)

10. V. Andrei,† G. M. Ucoski,† C. Pornrungroj, C. Uswachoke, Q. Wang, D. S. Achilleos, H. Kasap, K. P. Sokol, R. A. Jagt, H. Lu, T. Lawson, A. Wagner, S. D. Pike, D. S. Wright, R. L. Z. Hoye, J. L. MacManus-Driscoll, H. J. Joyce, R. H. Friend, E. Reisner, "Floating perovskite-$BiVO_4$ devices for scalable solar fuel production", *Nature* **608**, 518-522 (2022).

11. Q. Wang,† S. Kalathil,† C. Pornrungroj, C. D. Sahm, E. Reisner, Bacteria-photocatalyst sheet for sustainable carbon capture and utilization", *Nature Catalysis* **5**, 633-642 (2022).

12. S. Bhattacharjee, V. Andrei, C. Pornrungroj, M. Rahaman, C. M. Pichler, E. Reisner, "Reforming of soluble biomass and plastic derived waste using a bias-free $Cu_{30}Pd_{70}$|perovskite|Pt photoelectrochemical device", *Advanced Functional Materials* **32**, 2109313 (2022).

13. Q. Wang,† C. Pornrungroj,† S. Linley, E. Reisner, "Strategies to improve light utilization in solar fuel synthesis", *Nature Energy*, **7**, 13-24 (2022).

14. C. Pornrungroj,† V. Andrei,† M. Rahaman, C. Uswachoke, H. J. Joyce, D. S. Wright, E. Reisner, "Bifunctional perovskite-BiVO4 tandem devices for uninterrupted solar and electrocatalytic water splitting cycles", *Advanced Functional Materials* **31**, 2008182 (2021).

15. M. Rahaman, V. Andrei, C. Pornrungroj, D. Wright, J. Baumberg, E. Reisner, "Selective CO production from aqueous CO_2 using a $Cu_{96}In_4$ catalyst and its integration into a bias-free solar perovskite-BiVO4 tandem device", *Energy & Environmental Science* **13**, 3536-3543 (2020).