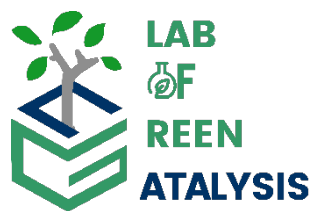


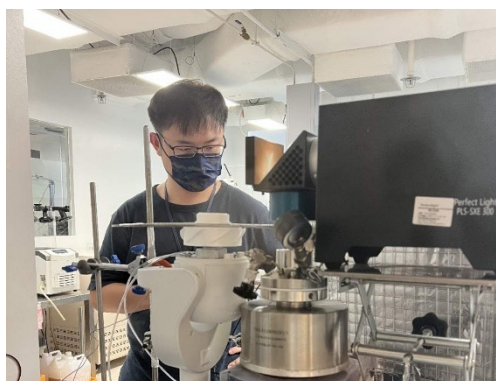
2022



Green Catalysis Lab YEARBOOK



National University of Singapore
Yan Group



03 Overview



05 Research Facilities

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16 Milestones

Editorial team

Chen Chen
Dong Yuning
Wang Tie
Yuan Dongxu

19 Group Activities



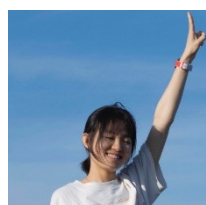
Prof. Yan Ning

He received his B.Sc. and Ph.D. degrees in Chemistry from Peking University, working with Prof. Kou Yuan from 2000 to 2009. After a Marie Curie Fellowship at École Polytechnique Fédérale de Lausanne in Switzerland with Prof. Paul Dyson, he joined National University of Singapore in 2012 and set up the Green Catalysis Lab. He was promoted to tenured associate professor in 2018. His group focuses on the catalytic transformation of renewable resources and heterogeneous catalysis.

Among the awards he received are the inaugural “Green Chemistry for Life” Young Scholar Award from UNESCO in 2014, the inaugural G2C2 Young Research Award from Global Green Chemistry Center Network in 2015, “Energy, Environment and Sustainability Early Career Award” from Royal Society of Chemistry in 2017, “Sustainable Chemistry & Engineering Lectureship Award” from American Chemistry Society in 2018, “Young Researcher Award” from NUS in 2019, and “NRF Investigatorship” from the Singapore Government in 2021. He is or was part of the editorial team of numerous international journals, such as ACS Catalysis, ACS Sustainable Chemistry & Engineering, Catalytic Science & Technology and Molecular Catalysis.

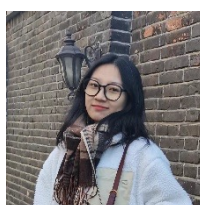
New members

PhD students






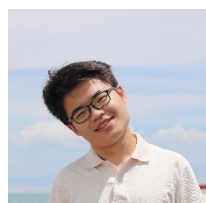
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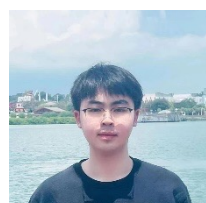
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👤 Research Fellow
 🏠 Seoul, South Korea
 🎓 KAIST (BSc & PhD)
 ✉️ cheleek@nus.edu.sg
 📅 01/2020-05/2022



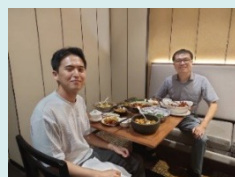
Pham Thuy Trang

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 📅 01/2021-04/2022



Ren Tianyu

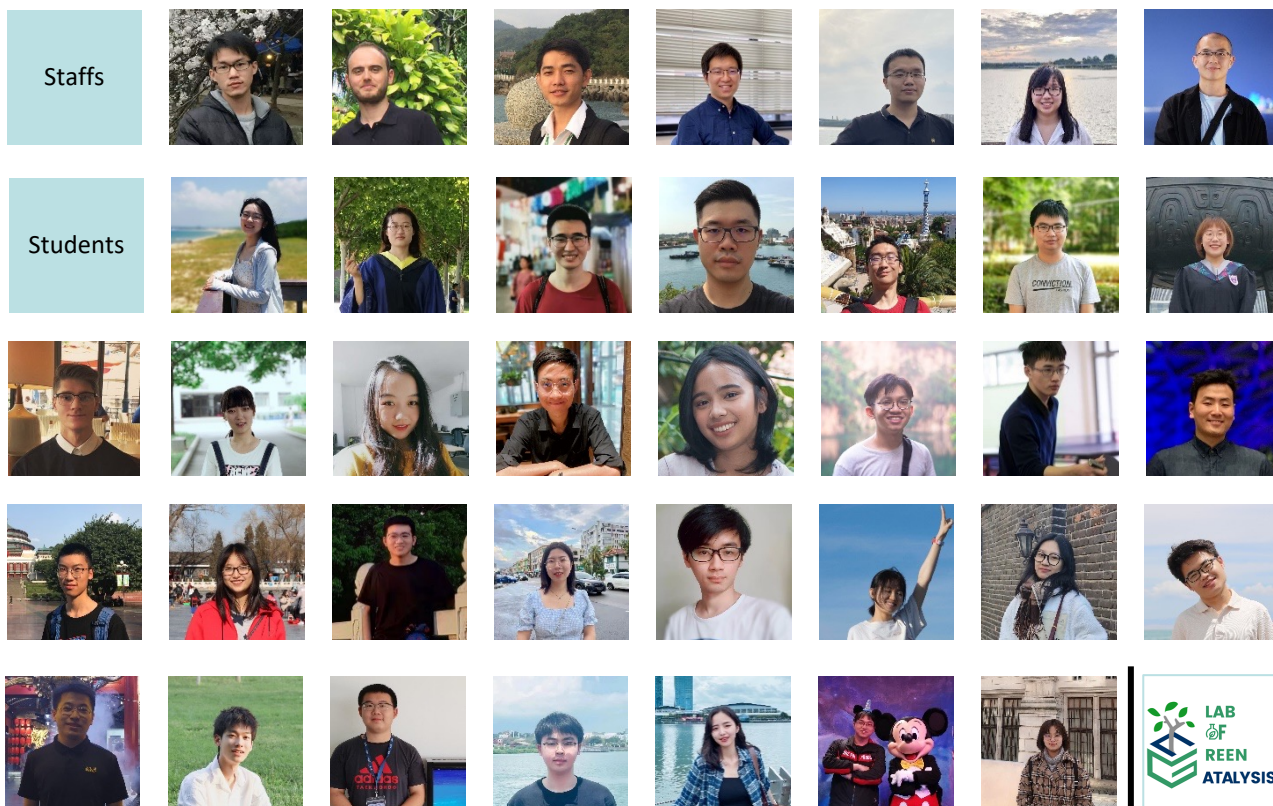
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 🎓 Tianjin University(BSc & MSc)
 ✉️ e0675776@u.nus.edu
 📅 01/2021-01/2022



Best Wishes to
 you all!

Current members

Our group currently has 6 post-doctoral research fellows, 1 Research Engineer, 24 PhD candidates, and 6 Master students.



RESEARCH FACILITIES

The laboratory is well-equipped for catalyst preparation, characterisation and testing.



E8-05-13



E8-05-21

E8-05-14



Catalyst preparation equipment include catalyst synthesis robot, centrifuges, freeze dryers, ovens and ball mills while catalyst characterisation equipment include temperature-programmed reduction (TPR) and desorption (TPD) set-ups, and in situ FTIR spectrometer.



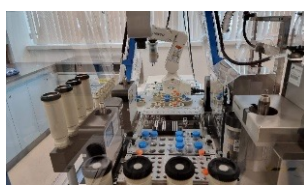
Ball mill



In situ FTIR spectrometer



Catalyst synthesis robot



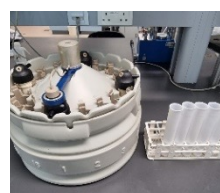
Catalyst testing equipment consist of 2 sets of fixed-bed reactors and several batch reactors while product analysis equipment include 2 online gas chromatographs, an offline GC and 2 high-performance liquid chromatograph (with RID and UV detectors).



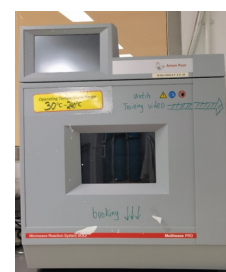
4-channel reactor



High-pressure flow reactor



Microwave reactor



Offline GC



Online GC



HPLC

Microwave reactor delivers excellent trace analysis results, hence being a powerful yet precise tool for extraction, digestion and synthesis.

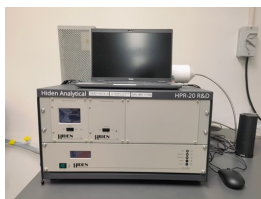
New equipment

Our lab has acquired several new pieces of equipment during 2022, which will unlock more research potential.



Chemisorption
Analyzer

The chemisorption analyzer can be used for the characterization of catalyst surfaces. The built-in TCD enables it to perform TPR/TPD/TPO and pulse chemisorption analyses. We can know our catalyst surfaces a lot better!

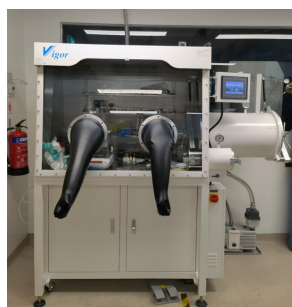


Mass Spectroscopy
(MS)

MS is configured for continuous analysis of gases and vapors at near atmospheric pressures. It provides improved resolution and abundance sensitivity with an ultimate detection limit of 5 ppb subject to spectral interference.



High Performance Liquid
Chromatography (HPLC)

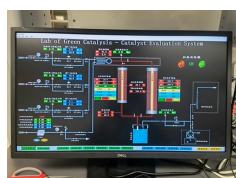


Glove box

Our lab adopted a more advanced HPLC, promising better separations and analyses. We also purchased a new advanced glove box. More catalysts and materials are going to be born in this glove box!



2-channel reactor

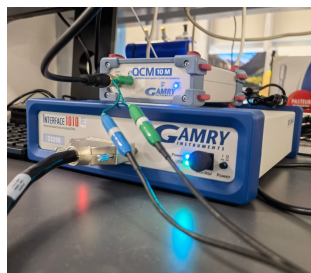


We acquired a 2-channel fixed-bed reactor for high-temperature and high-pressure reactions, for N_2 activation and N-compounds synthesis



Circular dichroism (CD) spectrometer

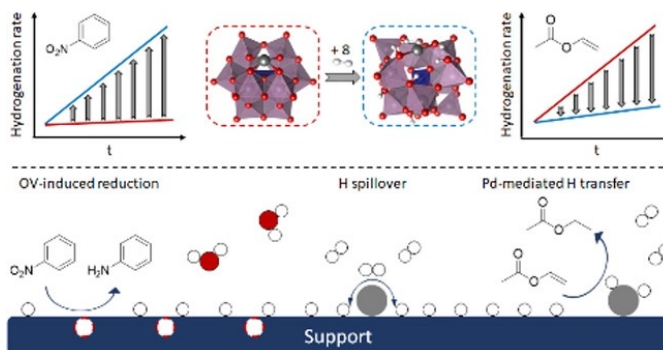
The CD spectrometer is equipped for the study of chirality compounds. Providing information of structures and configurations of chiral substrates, the CD spectrometer will benefit our projects in biomass conversion, which involve the use of chiral compounds and chiral catalysts.



Electrochemical workstation

Our lab currently has 3 electrochemical workstations and we will purchase another one in 2023. As a full-featured potentiostat, it is capable of performing all electrochemical techniques, including electrochemical impedance spectroscopy (EIS), providing our lab with more high-quality electrochemical tests.

Catalyst design

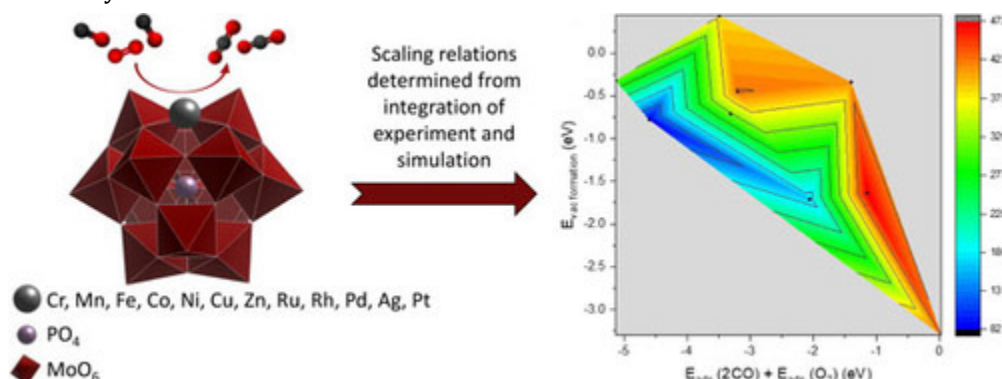


Graphical Abstract for *Angew. Chem. Int. Ed.* paper.

This year, we continued to achieve impactful results in catalyst design. First, we investigated hydrogen spillover with a solubilized polyoxometalate-supported single-atom catalyst. We performed kinetics, spectroscopy, spectrometry studies, and DFT calculations. Our results revealed that hydrogen spillover is an autocatalytic process and can be either detrimental or beneficial for catalysis, the direction and magnitude of which depends mostly on the nature of the reducible functional group (*Angewandte Chemie International Edition*). Then, we and our collaborators used continuous flow chemistry to realize the ultra-high activity with molybdenum disulfide supported platinum single-atom catalysts, and this catalyst exhibits excellent anti-leaching property (*Nature Communication*). Finally, we developed a Pd atom-promoted ZnZrO_x solid-solution catalyst, which exhibited superior activity and stability.

Representative Publications

- M. Hülsey *et al.* Hydrogen Spillover and Its Relation to Hydrogenation: Observations on Structurally Defined Single-Atom Sites. *Angewandte Chemie International Edition*, **2022**, e202208237 (Back cover article)
- Z. Chen *et al.* Addressing the Quantitative Conversion Bottleneck in Single-Atom Catalysis. *Nature Communication*, **2022**, *13*, 2807.
- M. Hülsey *et al.* Identifying Key Descriptors for the Single-atom Catalyzed CO Oxidation. *CCS Chemistry*, **2022**, *4*, 3296-3308.
- H. Yan *et al.* PO_4^{3-} Coordinated Robust Single-Atom Platinum Catalyst for Selective Polyol Oxidation. *Angewandte Chemie International Edition*, **2022**, e202116059



Graphical Abstract for *CCS Chem.* paper.

Dynamic catalysis

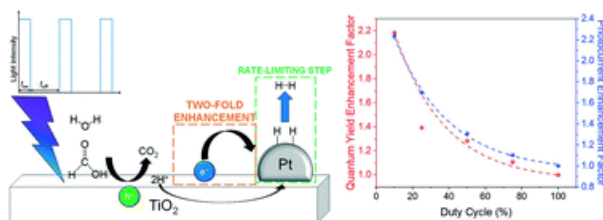
In 2022, we kept our pace in dynamic catalysis, a relatively new field, and achieve some important milestones. We loaded different noble metals on TiO_2 support and tested their photocatalytic performance towards formic acid decomposition reaction under constant and periodic illumination. We found that under moderate frequency, periodic light could increase the activity by more than 2-fold, regardless of metal types. With a series of photoelectrochemical characterizations, we proved that periodic illumination mainly contributes to promoting electron transfer to noble metal nanoparticles. New dynamic catalysis projects are also ongoing, stay tuned!

Green energy

This year, we have made gratifying progress in CO_2 conversion, including the prospect of using CO_2 feedstock for food production in the "Nature Sustainability" demonstrating "chemical farming". Our Pd atom-promoted ZnZrO_x solid solution catalysts also has a high activity towards CO_2 hydrogenation to methanol. In addition, our ammonia decomposition research is also in a good pace. More exciting results are on their way in the new year!

Representative Publications

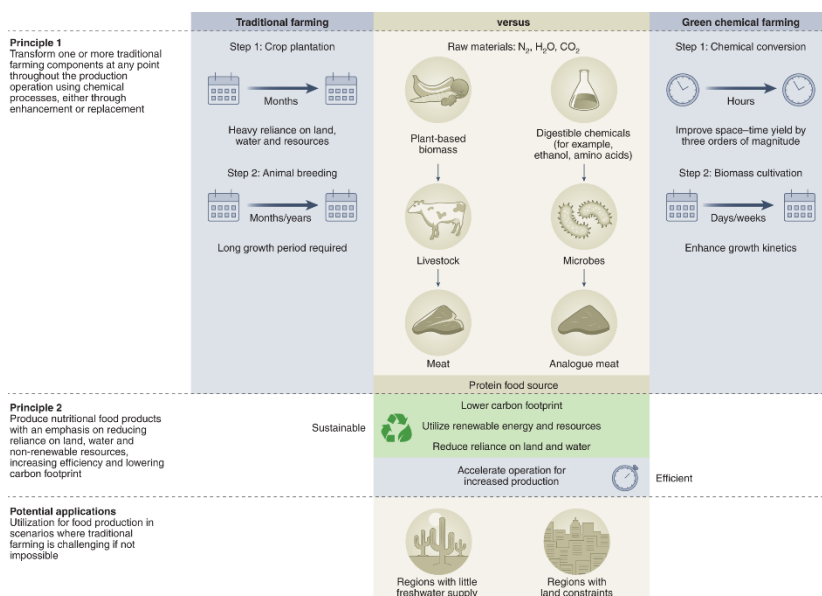
- S. S. Wong *et al.* Quantum Yield Enhancement in Photocatalytic HCOOH Decomposition to H_2 under Periodic Illumination. *Catalysis Science & Technology*, **2022**, 12, 5217-5228.



Graphical Abstract for *Catalysis Science & Technology* paper.

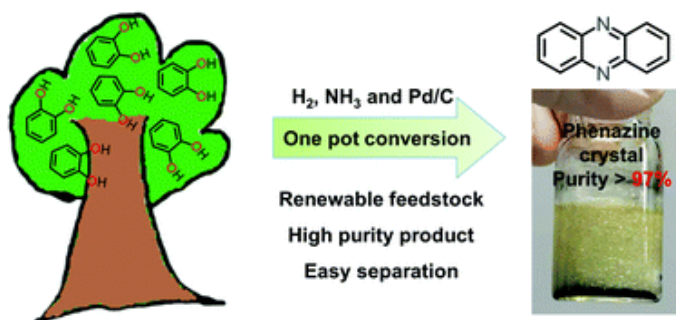
Representative Publications

- N. Yan *et al.* Pathways to food from CO_2 via green chemical farming. *Nature Sustainability*, **2022**, DOI: 10.1038/s41893-022-00906-8.
- K. Lee *et al.* Atomic Pd-promoted ZnZrO_x solid solution catalyst for CO_2 hydrogenation to methanol. *Applied Catalysis B: Environmental*, **2022**, 304, 120994.



Graph published in *Nat. Sustain.* paper.

Preparation of Renewable Nitrogen-Containing Compounds



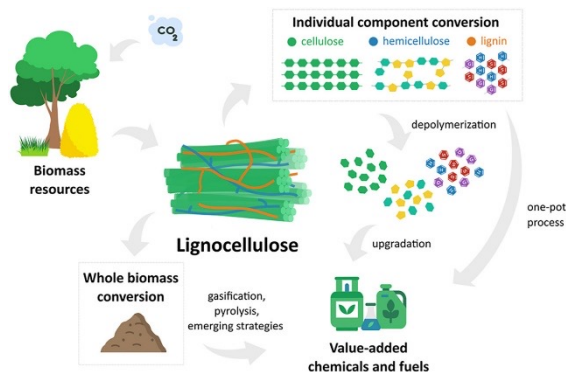
Graphical Abstract for *Green Chem.* paper.

This year, the fruits of our biomass team's work have finally landed, including our collaboration work with Prof. Zhou Kang to produce L-tyrosine from bagasse (Biomaterials) and collaboration work with Prof. Qi Wei to prepare phenazine from lignin-derived catechol (Green Chemistry). More exciting projects are on the way, stay tuned!

Representative Publications

- V. Fung *et al.* Producing aromatic amino acid from corn husk by using polyols as intermediates. *Biomaterials*, **2022**, 287, 121661.
- T. Ren *et al.* One-pot production of phenazine from lignin-derived catechol. *Green Chemistry*, **2022**, 24, 1224-1230.

Waste Refinery and Utilization

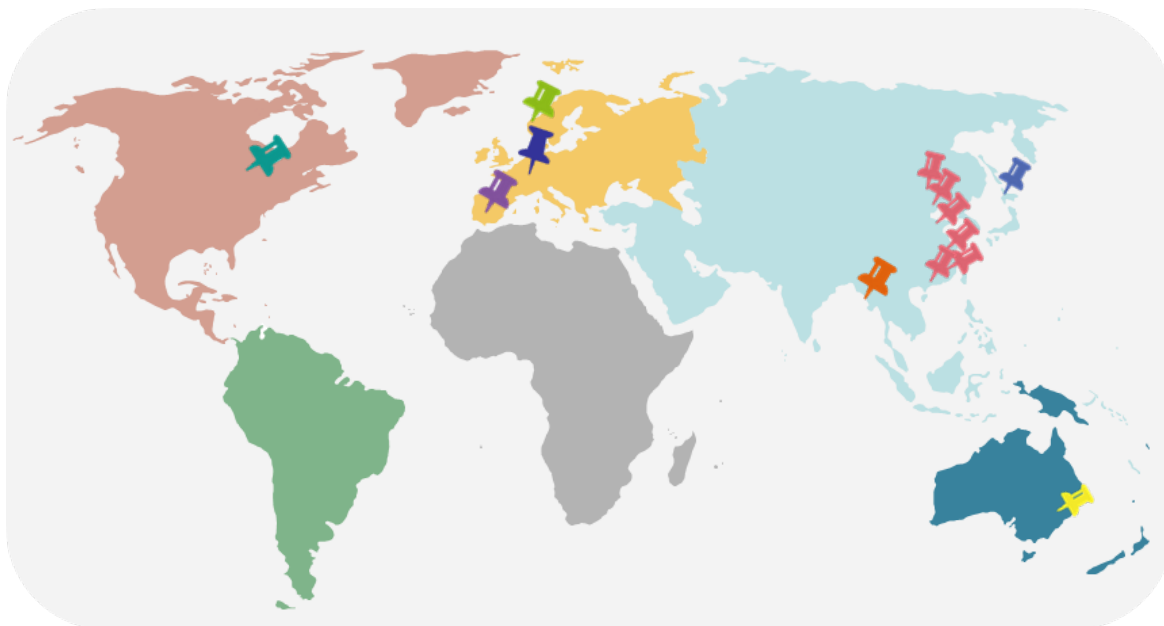










Graphical Abstract for *Green Energy Environ.* paper.

This year, based on our previous works in biomass conversion, we expanded our scope to waste plastic conversion, and achieved a series of success swiftly. In August, we published a comprehensive review providing a unified aspect of plastic conversion and biomass conversion pointing out the similarities of biomass and waste plastic conversion (Nat. Rev. Chem.). In October, we published a prospective on combined process of oxidation and bio-transformation (Science). Aside from introduction of the work, we also gave further insight to the hybrid transformation of mixed waste plastics.

Representative Publications

- N. Yan Recycling plastic using a hybrid process. *Science*, **2022**, 378, 132-133.
- K. Lee *et al.* A unified view on catalytic conversion of biomass and waste plastics. *Nature Reviews Chemistry*, **2022**, 6, 635-652.
- W. Deng *et al.* Catalytic conversion of lignocellulosic biomass into chemicals and fuels. *Green Energy and Environment*, **2022**, Accepted Manuscript



-  **China:** We have strengthened or established collaborations with Prof. Liu Haichao of Perking U, Prof. Li Jun of Tsinghua U, Professor Han Buxing of ICCAS, Professor Dai Yanjun of Shanghai Jiaotong U, Professor Wang Yanqin of East China U of Science and Technology, Prof. Feng Xiang's and Prof. Liu Yibin's team of China U of Petroleum, Prof. Qi Wei of Tianjin U, Prof. Wang Ye of Xiamen U, etc. After joining Shanghai Jiaotong U, Chen Xi has been transformed from a lab member to a collaborator.
-  **Japan:** Cooperated with Prof. Shinya Furukawa and Prof. Hiroyuki Asakura on conducting XAS testing at Spring-8 and then visited the University of Hokkaido in October for research collaboration.
-  **Norway:** Collaborated with Prof. Chen De on PO_4^{3-} coordinated robust single-atom platinum catalyst for selective polyol oxidation. The work was published in 2022 in *Angewandte Chemie International Edition*.
-  **Switzerland:** Co-authored an article on CO_2 hydrogenation reaction with Prof. Javier Pérez-Ramírez from ETH Zurich, which was published in *Applied Catalysis B: Environmental*. During his trip to Singapore, Prof. Pérez-Ramírez and his two lecturers had a great academic discussion with us.
-  **Australia:** Cooperated with Prof. Wojciech Lipinski from the Australia National University on mesoporous silica-encaged ultrafine ceria-nickel hydroxide nanocatalysts for solar thermochemical dry methane reforming.
-  **Tailand:** Collaborated with Prof. Chawalit Ngamcharussrivichai from Chulalongkorn University on propylsulfonic acid-functionalized mesostructured natural rubber/silica nanocomposites for alkyl levulinate synthesis.
-  **Spain:** Co-authored a review on the perspective of molecular catalysis with Prof. Rafael Luque from the University of Cordoba.
-  **Canada:** Mr. Lim Chia Wei, as our first PhD student under NUS-UT exchange program, finished the 4-month exchange at the University of Toronto, working with Prof. Ramin Farnood on the photocatalytic valorisation of waste biomass.

The NRF Investigatorship provides opportunities for established, innovative and active scientists and researchers, in their mid-career, to pursue groundbreaking, high-risk research. It is designed to support a small number of excellent Principal Investigators who have a track record of research achievements that identify them as leaders in their respective field(s) of research.

CLASS OF 2022



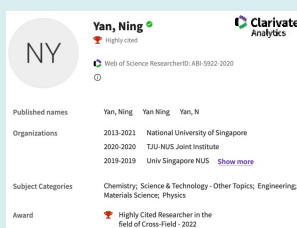
A/P YAN Ning
National University of Singapore
Department of Chemical and Biomolecular Engineering

Research Title : Green Amines for a Sustainable Future
Homepage : https://greenergy.nus.edu.sg/our_team/academic_staff/ning-yan/

NRF Investigatorship

Prof. Yan was awarded the NRF Investigatorship, Class of 2022.

It provides a S\$3 million research fund and is the highest award given to middle stage professors in Singapore. NRF aims to develop a strong science research and manpower base in Singapore.



Highly Cited Researchers in 2022

Prof. Yan has been listed as a Highly Cited Researcher 2022 (Chemistry) by Clarivate, among 34 NUS researchers this year. This honor is in recognition of his outstanding and impactful scholarly accomplishments.



Learning Innovation Fund - Technology (LIFT)

Lim Chia Wei has been awarded the LIFT grant, which supports his effort in developing an interactive learning software, named the ReactorDesign App, to encourage the self-directed learning of the subject of Reactor Design.



Outstanding Teaching Assistant Award

Lim Chia Wei won the Outstanding Teaching Assistant Award of the Department of Chemical & Biomolecular Engineering. This award recognizes TAs for their positive contribution to student learning and sustained effort in class preparation



序号	研究领域	2019 组	2020 组
1	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
2	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
3	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
4	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
5	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
6	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
7	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
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13	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
14	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
15	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
16	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
17	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
18	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
19	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian
20	环境工程	李俊峰, Zheng Qian	李俊峰, Zheng Qian

TJU–NUS Joint Institute awards

Our PhD students under the TJU-NUS Joint Institute **Sikai Wang, Jinquan Chang, Rui Liu and Yiyang Xiao** won the Best Research Report Awards at the second annual research workshop.



What's happening?



Tweet

Tianyu Ren— Research Fellow at GIEC, China

Exchange Ph. D.

Ren smoothly graduated from Tianjin University in mid-2022. Later, he got married to Dr. Wang Xiaofei (the smiling girl in the picture). 🎓❤️

Now he is working as a Research Fellow at the Guangzhou Institute of Energy Conversion (GIEC), continuing an interesting project on biomass utilization.



Gerald Har— Ph.D. at the University of Delaware

Exchange Ph. D.

Dr. Har has successfully defended his doctoral thesis in Jul. 2022. Congratulations! 🎓

Also, he expects to return to Singapore and meet Prof. Yan and all lab members again. Hope to see you soon! 🙌



Bin Zhang—Research Professor at First Affiliated Hospital of Shenzhen University

Research Fellow & Ph. D.

Dr. Zhang shared with us the good news that, in 2022, he led two projects that received grants from the National Key R&D Program of China (CNY 6.37 million) and the National Natural Science Foundation of China (NSFC).

Dr. Dang Shanshan, the first Research Fellow in Dr. Zhang's team, has now joined the School of Chemical Engineering at Zhengzhou University.

Also, he reunited with Zhou Yu, Fang Jun, and Ding Shipeng in 2022 (all three are former members of our lab). 🍷



Kyungho Lee— Senior Researcher at Korea Institute of Energy Research
Research Fellow

Kyungho shared with us many happy updates and joyful memories in 2022. He met with Prof. Yan and other outstanding professors in Korea on Aug 25, 2022. 🥂

Besides, he enjoyed a lot in the first summer break after the COVID-19 outbreak by travelling to Cebu, Philippines. Also, Kyungho spent a great time with his family in Japan in Nov. 2022, celebrating his mom's 60th birthday. 🏠

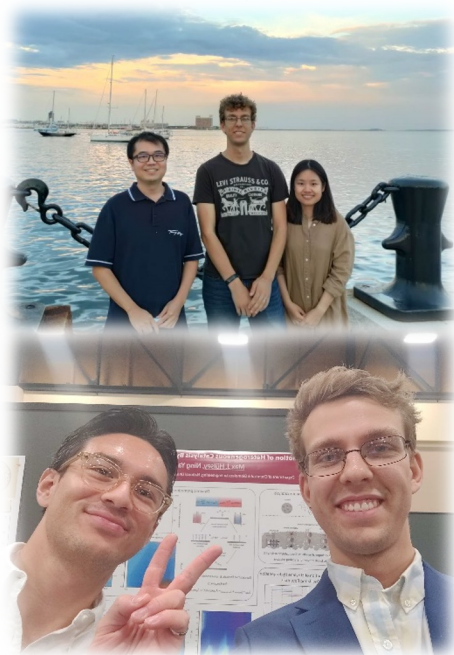


Max Hülsey—Research Fellow at MIT

Research Fellow & Ph D

Max and Huiying started their new life in Cambridge (US). Max has been a Research fellow at MIT since early 2022 while Huiying is a process engineer at a startup for electric vehicle batteries.

In Aug. 2022, they met Prof. Yan in Boston and took a reunion photo. Also, Max met Gabriel Patrón (a former exchange BSc student in our group) at a conference in Phoenix, Arizona. 📷



Song Song—Associate Professor at Tianjin University

Research Fellow

Dr. Song Song was promoted to Associate Professor at Tianjin University this year. 🤝

Another great progress for him in 2022: He was selected into “The 8th Young Elite Scientists Sponsorship Program” by China Association for Science and Technology.



Yu Zhou— Associate Professor at Nanjing University of Technology

Visiting Scholar

Dr. Zhou was supported by the National Natural Science Foundation of China, (NSFC, the National Science Fund for Excellent Young Scholars) in 2022. Also, he won the Jiangsu Provincial Outstanding Youth Fund. 🎉



Qiming Sun—Professor at the Soochow University

Research Fellow

Dr. Sun was successfully approved for the Young Scientist Project of the National Key R&D Program, and won the honor of "Gusu Innovation and Entrepreneurship Leading Talent". Heartfelt congratulations!

He was invited to give a keynote speech at the 1st Youth Molecular Sieve Academic Conference of the Chinese Chemical Society. Also, he will undertake the 2nd conference as the chairman. 📍

As a PI, his research group has enlarged to 11 students, and the new lab construction is almost complete.



Jianguang Zhang—Senior Lecturer at University of Lincoln

Research Fellow

In 2022, the biggest good news for Dr. Zhang was his promotion to Senior Lecturer at the University of Lincoln. Also, he has joined the Youth Editor board for Carbon Neutrality, and expressed his great appreciation for Prof. Yan's nomination.

Mengnan continues working on technology commercialization at Imperial College London and became the co-Founder and CEO of e-Carb Ltd together with Prof Magda Titirici and Prof James Clark. Also, both of their children made good progresses this year, and Eric has become a primary schooler. 🏠



JUNG Ji Chul—Professor at Myongji University, South Korea

Visiting Scholar

Jung and his family sent us best regards to all our lab members.

Both of his two children grew up fast, happily and healthily. The elder brother, Henry finished his study in primary school, while Oscar enjoys skiing. 🏂



Liu Yibin—Professor at China University of Petroleum, East China

Visiting Scholar

Dr. Liu's group launched a new high-standard laboratory in 2022. Together with Dr. Yan Hao, he published a paper in *Angew. Chem.*

His two daughters have mastered swimming. One of them tried the roller coaster for the first time, and attended a piano competition. 🎹 🎢

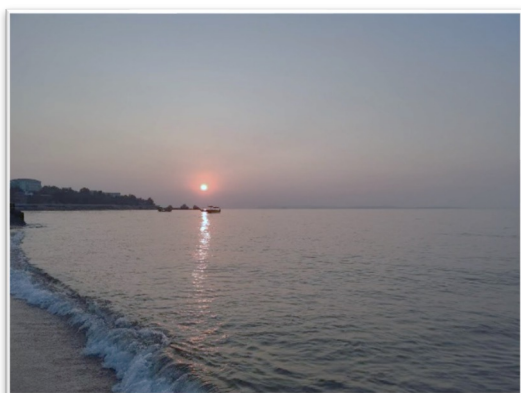


Yaxuan Jing— Professor at ECUST, China

Exchange Ph. D.

Dr. Yaxuan Jing published four peer-reviewed papers this year. Remarkably, one excellent review on plastic and biomass guided by Prof. Yan was accepted by and published in Nature Reviews Chemistry.

Also, he highlighted that he watched the sunrise at the seaside for the first time, which has been one of his goals since ten years ago. Thanks to him for sharing his memorable moment with us.



Wenjing Li— Work at SGEP, Shandong Research Institute, China

Exchange Ph. D.

In 2022, the most wonderful thing for Wenjing was to welcome his twin children (in the following portrait, the happy family of five is celebrating the twins' first birthday). Congratulations! 🎂📺

Also, Wenjing led the research on super-hydrophobic technology which is at the international leading level and has been highly appraised by experts. Currently, the research is at the stage of product incubation, promotion, and application.

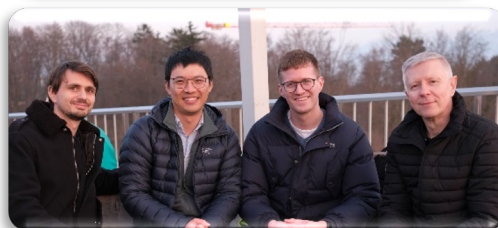


Felix Bobbink — CEO in Plastogaz

Exchange MSc

Felix and all Plastogaz founders have received an investment from Dow Chemicals, and largely accelerated the development of their hydrocracking technology! The funding is being used to build a pilot plant and move to a new laboratory space. 🏭

Felix also shared with us the happiness of his family, as his 2nd adorable baby (family photo, far left) was born in Feb. 2021 and is now almost 2 years old.



MILESTONES

JAN

We hosted the first CNY party online and invited both members in Singapore and China to join. 🎉

FEB

Our project on ammonia cracking to produce hydrogen has been launched! 📄

MAR

Prof. Yan as one of the two NUS winners of the NRF Investigatorship, Class of 2023, has started the project. 🏆



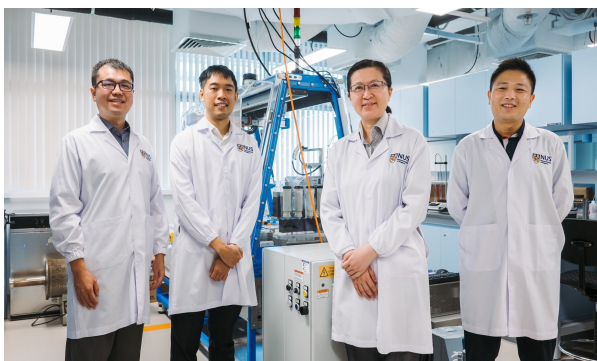
Keshia Saradima Indriadi, Xu Di and Nguyen Thai Thien Phuc passed their cQE. Congratulations! 🎓

APR

The Centre of Hydrogen Innovations has commenced operations and Prof. Yan is one of the researchers who will be leading the groundbreaking hydrogen-related research. 🌱

MAY

Prof. Yan and Lim Chia Wei have successfully applied for a Learning Innovation Fund - Technology (LIF-T) teaching grant to support development of the Reactor Design App. It's a significant achievement as the first teaching grant in the lab's history! 🏆



Lim Chia Wei received the Outstanding Teaching Assistant Award from the NUS Department of Chemical and Biomolecular Engineering for his contribution to the development of pedagogical tools for the learning of the Reactor Design undergraduate module. 🏆



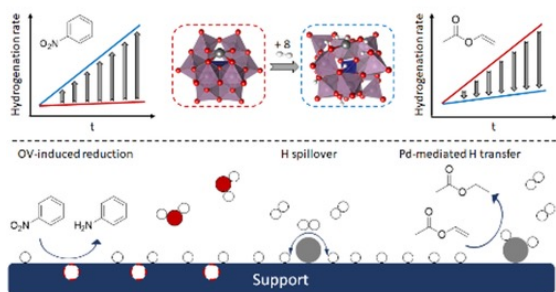
Heartiest farewells to Dr. Lee Kyungho who has started his new position at the Korea Institute of Energy Research. 🙋



JUN

Our article to describe how chemical engineering can contribute to food production, entitled “Pathways to food from CO₂ via ‘green chemical farming’” has been published in Nature Sustainability! 🏆

Our MOE Tier-2 project on chiral amino acid synthesis has been launched! 📄



Prof. Yan attended the 12th International Conference on Environmental Catalysis in Osaka and Lignin Gordon Research Conference in USA. 🌍

Li Haoyue, Wong Sie Shing and Wang Sikai presented their exciting research works at the TOCAT9 conference held in Fukuoka. 🎤

Liu Rui, Chang Jinquan, An Hua, Xiao Yiyang and Wei Pingping have passed their oQE. Congratulations! 🎓



Lim Chia Wei embarked on a 4-month exchange at the University of Toronto, Canada, working with Prof. Ramin Farnood on the photocatalytic valorisation of waste biomass. 🌱

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Pathways to food from CO₂ via ‘green chemical farming’

[Ning Yan](#) ✉, [Kang Zhou](#), [Yen Wah Tong](#), [David Tai Leong](#) & [Maxim Park Dickieson](#)

Nature Sustainability 5, 907–909 (2022) | [Cite this article](#)

Our work using well-defined single-atom catalyst to understand hydrogen spillover phenomenon has been published in Angew. Chem. as VIP and back cover! 🏆

JUL

Welcome Prof. Yong Sik Ok to Singapore and visit our Yan Group! 😊



AUG

We warmly welcomed our new members, including a Research Fellow (Dr. Zhang Quan), three PhD students (Chen Chen, Dong Yuning and Wang Tie), three MEng students (Ran Chongshihan, Li Yiyang and Zhang Yifan) and a MSc student (Fang Xiao). 🙌



SEP

Wang Sikai attended the WCOC9 conference and visited Cardiff Catalysis Institute at Cardiff University, UK, for research collaboration. 🏆



Prof. Yan visited Korea University, KAIST, Seoul National University and attended the Materials Challenges in Alternative & Renewable Energy conference. 🏆

OCT

Wang Sikai, Xu Di and Prof. Yan went to SPring-8 in Japan to conduct experiments and visited the University of Hokkaido for research collaboration. 🍀

NOV

We received an invitation to write a perspective article on plastic upcycling in Science! 📄

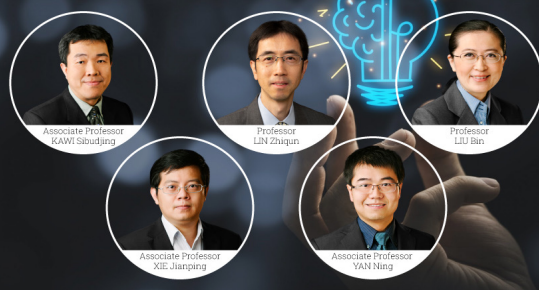


Thanks Professor Pérez-Ramírez, our Isaac Manasseh Meyer Visiting Professor, and his two lecturers from ETH Zurich, Dr. Antonio José Martín Fernández and Dr. Sharon Mitchell for many good discussions. 🍀

A series of new pieces of equipment arrived! 😊

World's Most Influential Scientific Minds

2022 Highly Cited Researchers



DEC

Our first article on unifying thermal-, electro-, and photo- catalytic reaction pathways has been published in ACS Catal. More exciting works to come! 📄

Congratulations to Prof. Yan on becoming one of the world's most influential scientific minds based on the Highly Cited Researchers 2022 List! 🏆



We welcomed Prof. David Allen (U of Texas at Austin), Prof. Ning Yan (U of Toronto), Prof. Ramin Farnood (U of Toronto), Prof. De-en Jiang (Vanderbilt U) in Singapore! 🙌

GROUP ACTIVITIES



Chinese New Year
Online Celebration
Goodbye, 2021! Hello,
2022!

Farewell Dinner for
Dr. Pham



BBQ Party at Labrador Park



Welcome Dinner For Fresh Students
intake Aug. 2022/2023

GROUP ACTIVITIES



Regular Badminton

Heart-shaped
Gesture Flashing
Photo by all lab
members



BBQ Party for New Year
Celebration
at Prof. Yan's House