



TAIWAN TECH

National Taiwan University of Science and Technology



Department of Chemical Engineering of Taiwan Tech

Min-Hsin Yeh 葉旻鑫

Assistant Professor, Department of Chemical Engineering
National Taiwan University of Science and Technology, Taipei, Taiwan

2021.05.15



Tiger Duck 118



臺科大
TAIWAN TECH



About me

CURRICULUM VITAE



Name: Min-Hsin Yeh (葉旻鑫)

Research Experiences

2018/08 ~Present	<i>Assistant Professor</i> , Department of Chemical Engineering, National Taiwan University of Science and Technology (Taiwan Tech), Taipei, Taiwan
2017/08 ~2018/07	<i>Postdoctoral fellow</i> , Department of Chemical Engineering, National Taiwan University (NTU), Taiwan (Advisor: Dr. Kuo-Chuan Ho 何國川)
2017/01~2017/07	<i>Postdoctoral fellow</i> , Institute of Chemistry, Academia Sinica , Taiwan (PI: Dr. Chun-Hong Kuo 郭俊宏)
2016/03~2016/12	<i>Postdoctoral fellow</i> , Sustainable Energy Development Center, National Taiwan University of Science and Technology (Taiwan Tech), Taiwan (PI: Dr. Bing-Joe Hwang 黃炳照)
2014/09~2016/02	<i>Postdoctoral fellow</i> , School of Materials Science and Engineering, Georgia Institute of Technology (Georgia Tech), USA (PI: Dr. Zhong Lin Wang 王中林)
2008/09~2008/10	<i>Visiting student</i> , Department of Chemical and Biomolecular Engineering, Case Western Reserve University (CWRU), USA (PI: Dr. Chung-Chiun Liu 劉炯權)

Education Background

2009/09~2013/07	Ph. D., Department of Chemical Engineering, National Taiwan University (NTU), Taiwan (Advisor: Dr. Kuo-Chuan Ho 何國川)
2007/09~2009/07	M. S., Department of Chemical Engineering, National Taiwan University of Science and Technology (Taiwan Tech), Taiwan (Advisor: Dr. Bing-Joe Hwang 黃炳照)
2003/09~2007/07	B. S., Department of Chemical Engineering, National Taiwan University of Science and Technology (Taiwan Tech), Taiwan



化工系要上啥麼課

All About 工程

課表參考自成大化工系

選修

生物化學
生醫工程
生物材料
功能性材料
合成生物學
工業電化學
半導體物理元件
材料科學

高分子化學
高分子物理
高分子加工
高分子科學
界面化學
半導體材料製程
奈米材料
工業觸媒

化工

必修

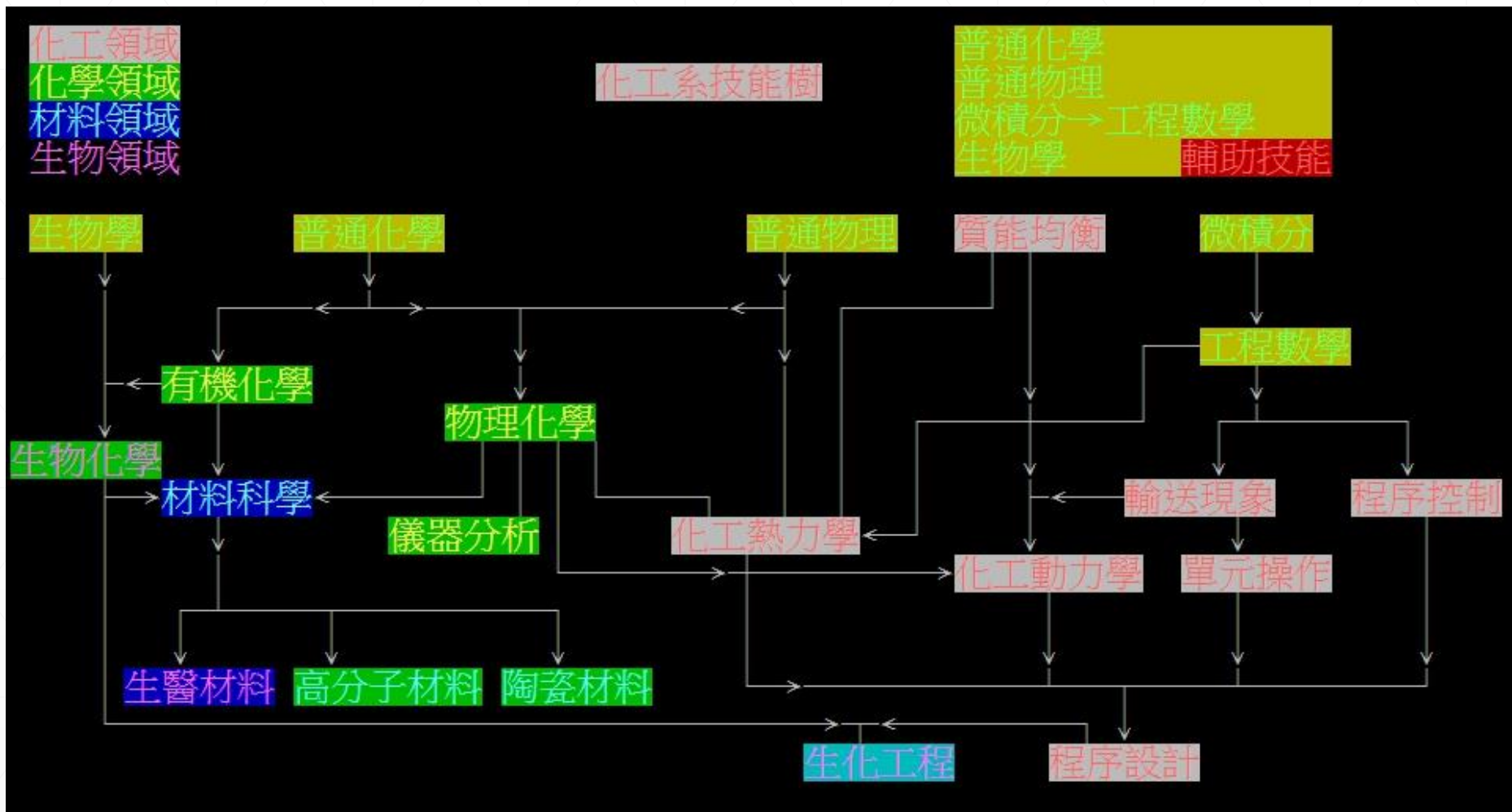
工程數學
有機化學
物理化學
單操輸送

儀器分析
程序控制
程序設計
化學反應工程
化工熱力學

化學感測器
微流體輸送
石油煉製技術
燃料電池
工業減廢
綠色材料
環境安全與衛生

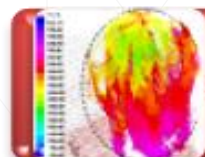


化工系技能樹

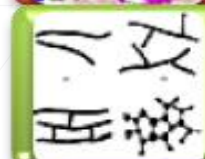




Research Themes



Thermodynamics



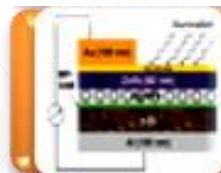
**Polymer Science &
Engineering**



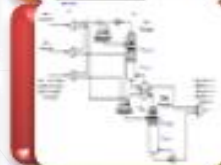
**Biochemical &
Biomedical
Engineering**



**Interfacial & Nano
Science and
Engineering**



**Photo-electric &
Energy Materials**



**Process System
Engineering**



**Environmental
Engineering**



**Clean Technology &
Processes**



**Computational
Chemistry**



Hao-Yeh Lee
Professor

- **Green Process Technology**
- **Reactive Distillation Technology**
- **Azeotropic Distillation Technology**
- **Process Design & Optimization**
- **Process Control**

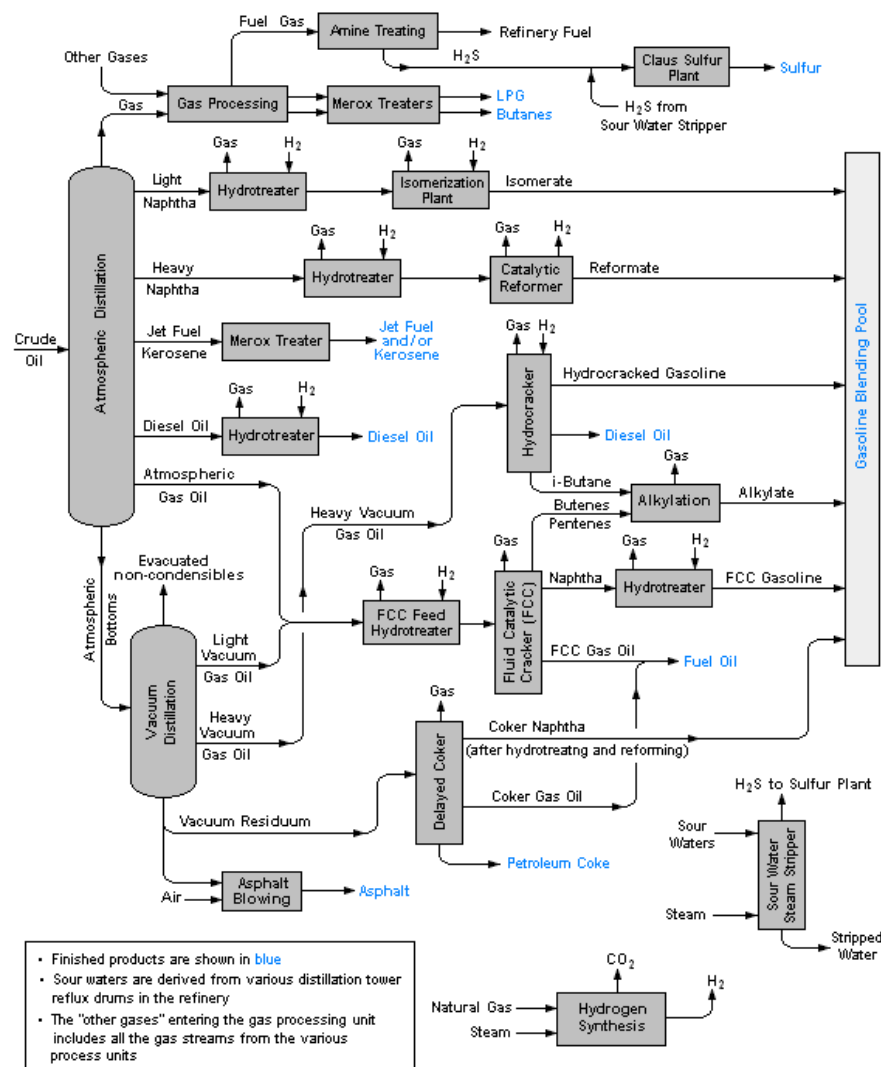
- **Carbon Dioxide Capture and Sequestration**
- **Supercritical Carbon Dioxide**
- **Gas Hydrates**



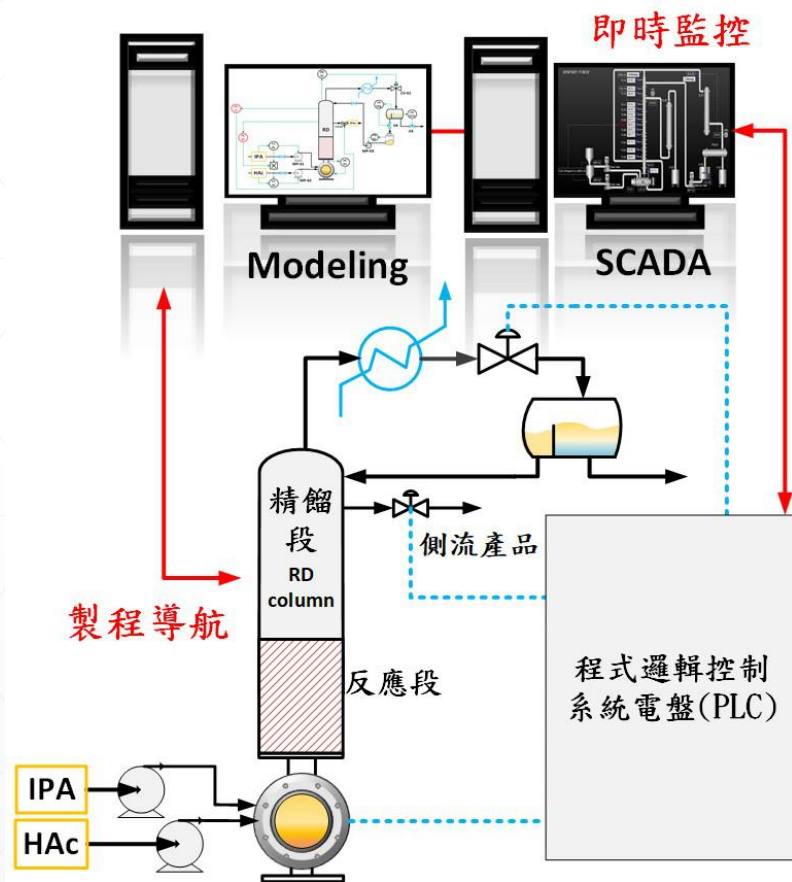
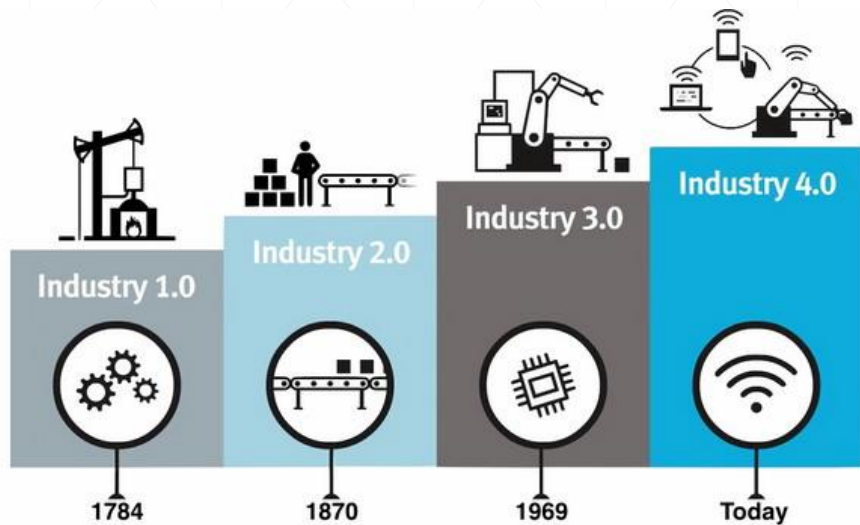
Ardila Hayu Tiwikrama
Assistant Professor



程序控制



<https://www.youtube.com/watch?v=R1MKiXrPzyk>





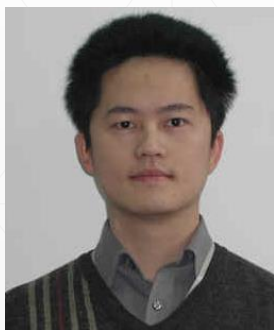
Environmental Engineering



Young Ku
Chair Professor

- **Advanced Oxidation Processes**
- **Greenhouse Gas mitigation**
- **Separation Processes**

- **Water resources and wastewater treatment**
- **Rare metals and nutrients recovery from wastes**
- **Separation processes**



Y. H. Tseng
Associate Professor

- **Environmental Catalytic Processes**
- **Photocatalysis**
- **Chemical-looping combustion process**
- **Development of analysis procedures for trace impurities**



J.C. Liu
Professor
(Vice President)



High-Efficiency Wastewater Treatment Technology

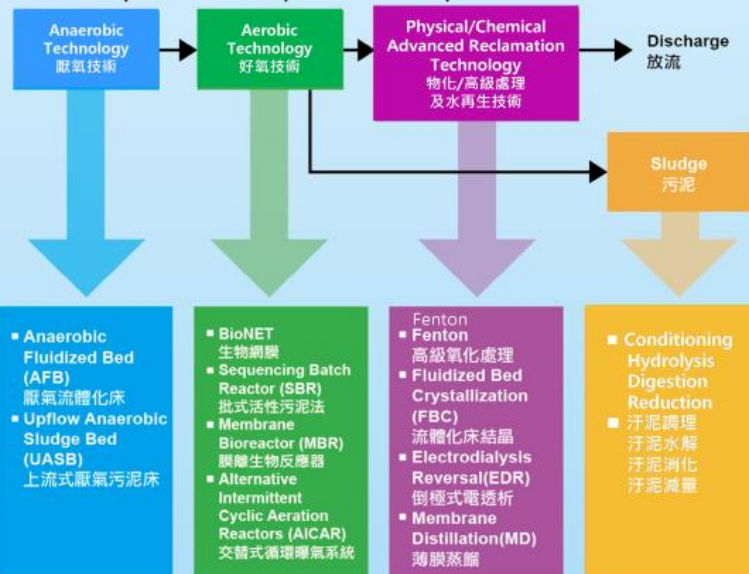
高效率廢水處理技術

Industrial Wastewater
Domestic Sewage

工業廢水
生活污水

Organic wastewater
有機廢水

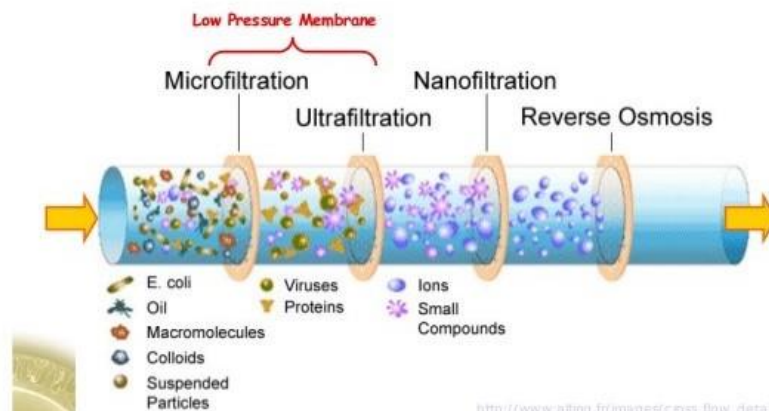
Inorganic wastewater
無機廢水



環境 > 環境

一滴水用三次 缺水也不怕

四月二十一日是世界地球日，然而全球正面臨水資源短缺風險。解決當務之急，台灣企業正積極發展再生水與節水技術，不但符合循環經濟概念，更將帶來龐大商機。

http://www.atimg.fr/images/cross_flow_details.gif



Materials for Energy Conversions



Bing-Joe Hwang
National Chair
Professor

- Fuel cells and catalysts
- Solar cells and water splitting
- Novel batteries

- Nano-technology of energy materials
- Solid oxide fuel cells, PBI membrane fuel cells
- RuO₂ and IrO₂ nanophases
- Inorganic membranes
- Silane CVD

- Advanced carbon nano material
- Microplasma

- Material for electrochemical conversion
- Rechargeable metal-air batteries
- Self-powered electrochemical systems



Dah-Shyang Tsai
Professor



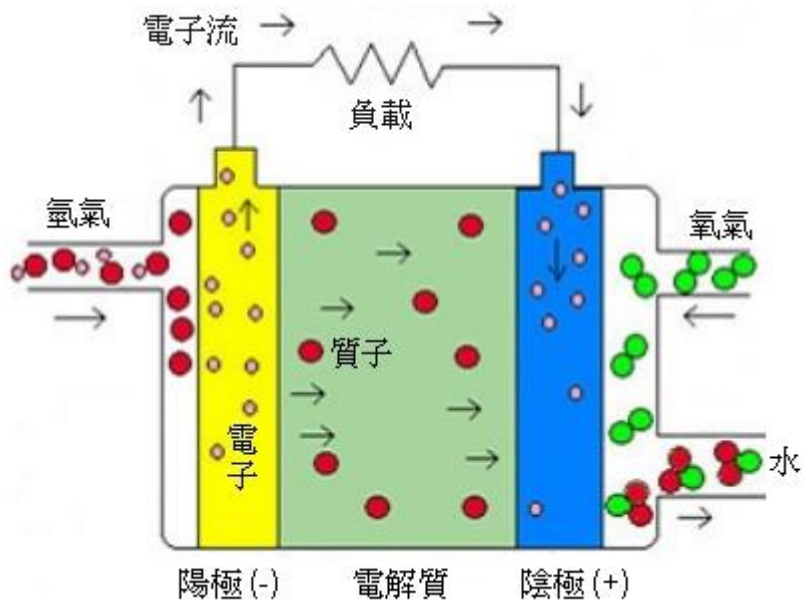
Min-Hsin Yeh
Assistant Professor



Wei-Hung Chiang
Associate Professor



綠色能源轉換與儲存





Materials for Chemical Conversions



Shawn D. Lin
Professor

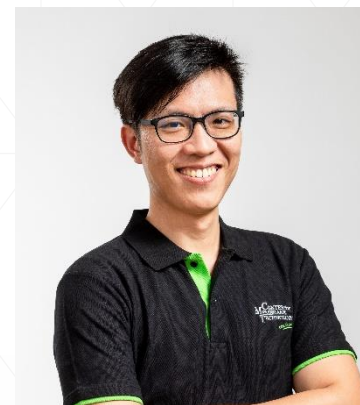
- Catalyst Design & Optimization
- Fuel cells and catalysts
- Hydrogen production
- CO₂ conversion

- Catalytic conversion
- Photocatalytic conversion
- Membrane reactor



Chia-Ying Chiang
Associate Professor

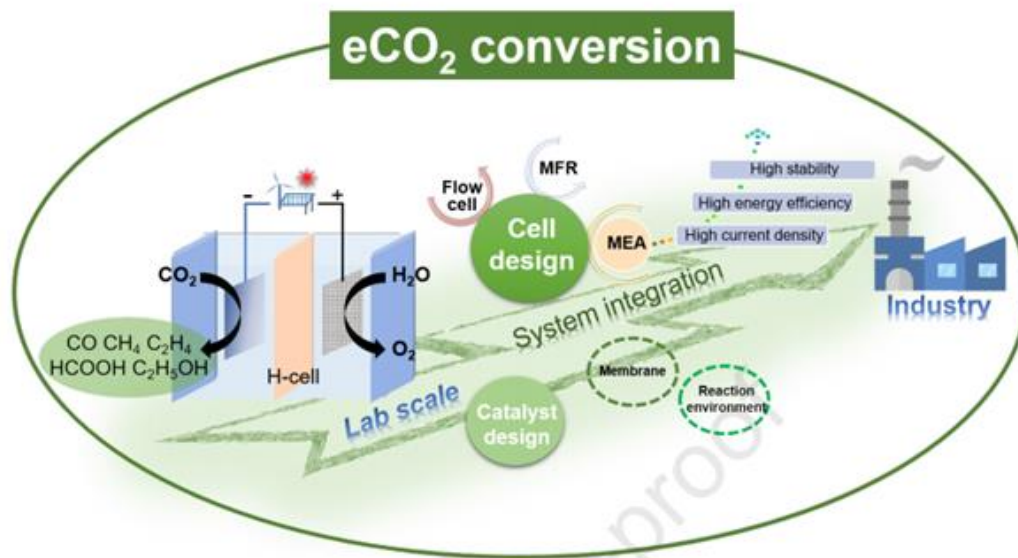
- Photoelectrochemical cells
- Electrocatalytic reactions
- Process intensification



Chechia Hu
Associate Professor



點石成金的化工製程





Materials for Optoelectronic Devices



Liang-Yih Chen
Professor

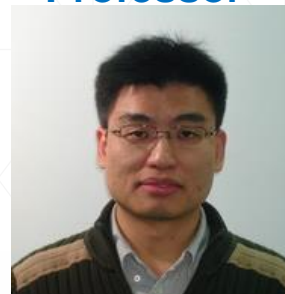


Jia-Yaw Chang
Professor

- Epitaxial growth of thin films
- MOCVD growth of
- Solar cells
- ZnO-based Dye-sensitized Solar Cells
- Perovskite Solar Cells
- Photoelectrochemical cells
- Applications of self-assembled monolayer
- Organic molecule electronics
- Surface Science
- Nanomaterials for photovoltaics
- Nanomaterials for bio applications
- Photochemistry and Organic Optoelectronic Materials



Lu-Sheng Hong
Professor



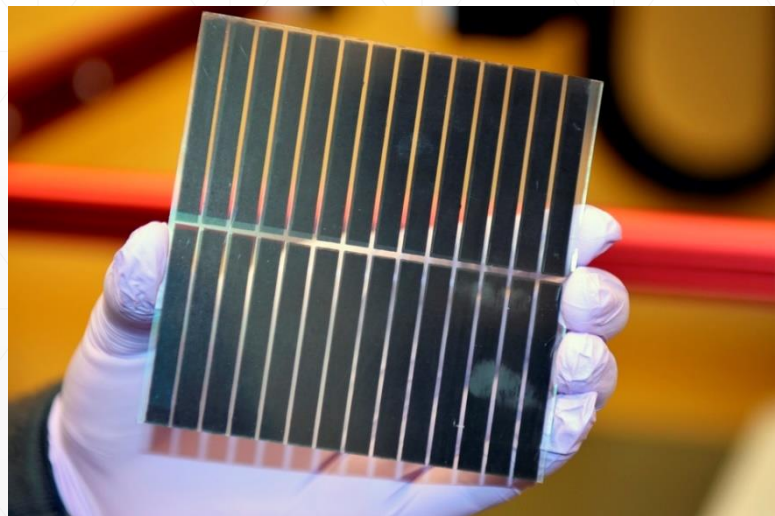
Yian Tai
Professor



Jinn-Hsuan Ho
Associate Professor



太陽能電池





Polymer Science & Engineering



Chong-Shyan Chern
Professor

- Emulsion / miniemulsion polymerization
- Hyper-branched polyimides (STOBA)
- Organic / inorganic colloids



Yan-Jyi Huang
Professor

- Polymer electrolyte membrane
- Electrolyte for high voltage Li batteries
- Electrochromic polymer
- Polyimide alignment layer
- Hydrogen peroxide sensing

- Polymer nano-composites
- Polymer blends

- Stretchable and healable semiconductors
- Sugar-based dielectrics
- Polymer morphology
- Polymer transistor & memory



Yaw-Terng Chern
Professor



Yu-Cheng Chiu
Assistant Professor



新型高分子材料

3M

DU PONT



https://www.youtube.com/watch?v=gJ_qA80Ztww



Biotechnology



Cheng-Kang Lee
Professor (Chair)

- **Recombinant enzymes for biosensing**
- **Biomolecules for antimicrobial and anti-biofilm**
- **Bionanomaterials preparation and applications**
- **Biofuels fermentation**

- **Photoactive bacteriorhodopsin**
- **Protein production**
- **Membrane chip fabrication**
- **Bio-photoelectric devices**
- **Biosensors**



Hsiu-Mei Chen
Professor



Biotechnology



Wen-Chi Tseng
Professor

- Self-assembly, pH responsive delivery
- Effect of biophysical properties on the delivery
- Preparation of biopolymer with bacteria
- Biocompatibility of biopolymers

- Cell-material interaction
- Induction of pulp stem cells
- Biodegradable scaffold
- Formation of new bones
- 3D printing bite plate
- Targeted drug delivery

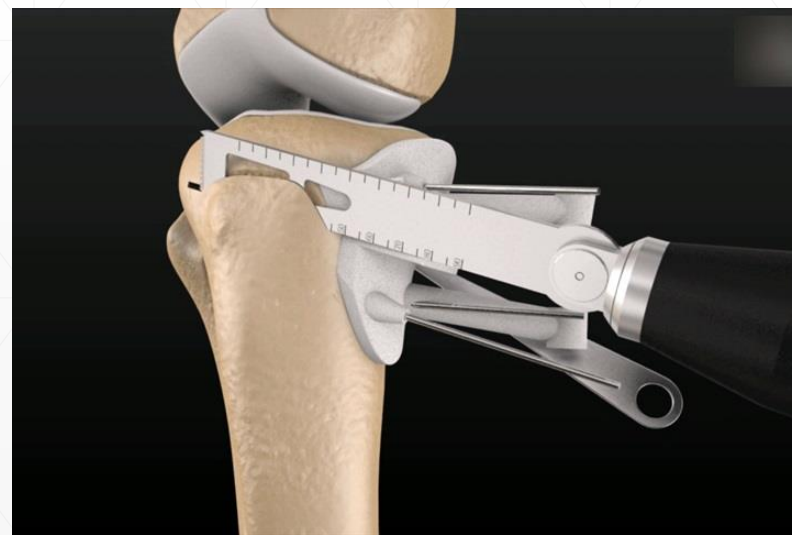
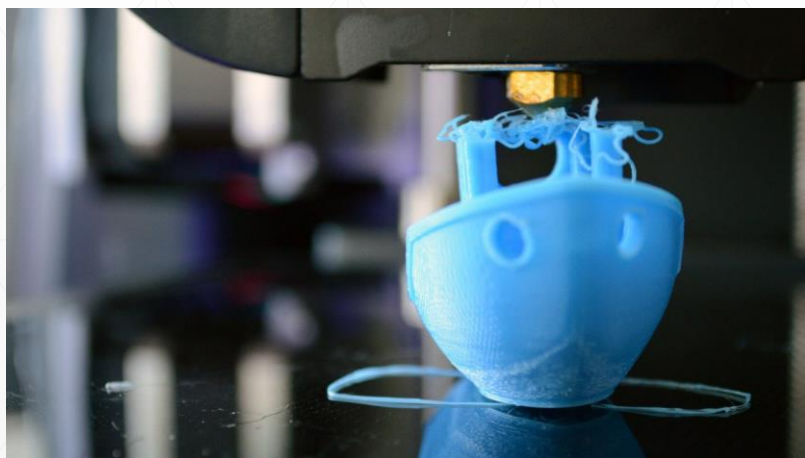
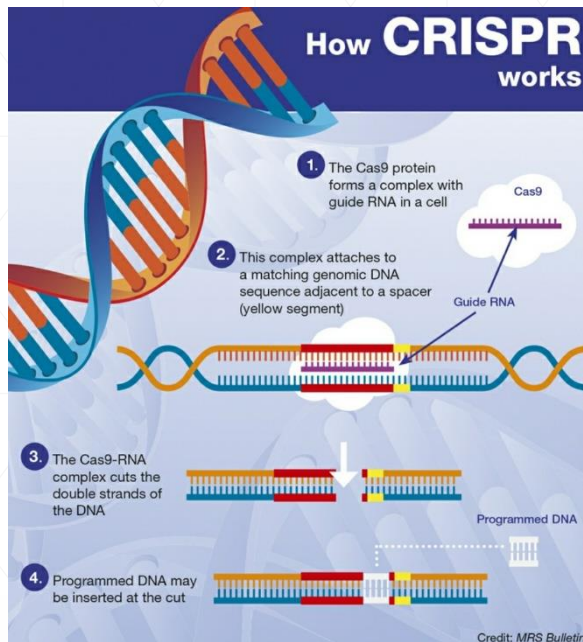


Shen-Long Tsai
Professor

- Synthetic Biology
- Protein Engineering
- Bioinspired Engineering
- Energy, environmental, and medical applications



Ming-Hua Ho
Professor





Interface Science & Technology



Shi-Yow Lin
Professor

- Surfactant adsorption kinetics
- Wetting phenomena
- Sub-micelles and micelles
- Surface tension at high temperatures



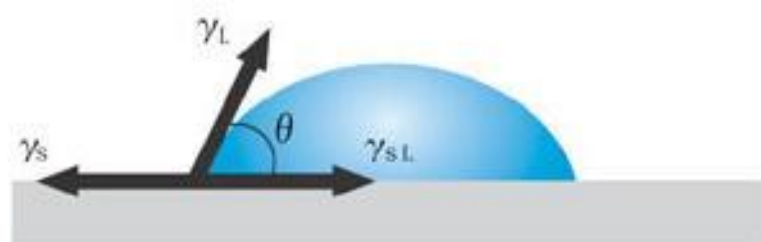
Li-Hsien Yeh
Professor

- Cell-material interactions
- μ -topography surfaces
- Nanoparticles and composites
- Bio- and environmental- sensing
- Plasma polymerization



Meng-Jiy Wang
Professor

- New types of water-enabled energy generation
- Microfluidics and nanofluidics
- Ion transport / Ionic Circuit
- Nanopore sensing technique

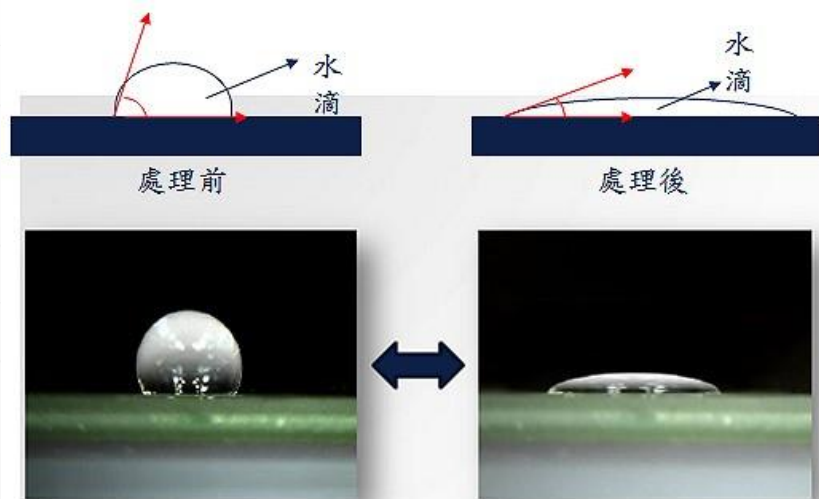


γ_s ... Solid Surface Tension

γ_L ... Liquid Surface Tension

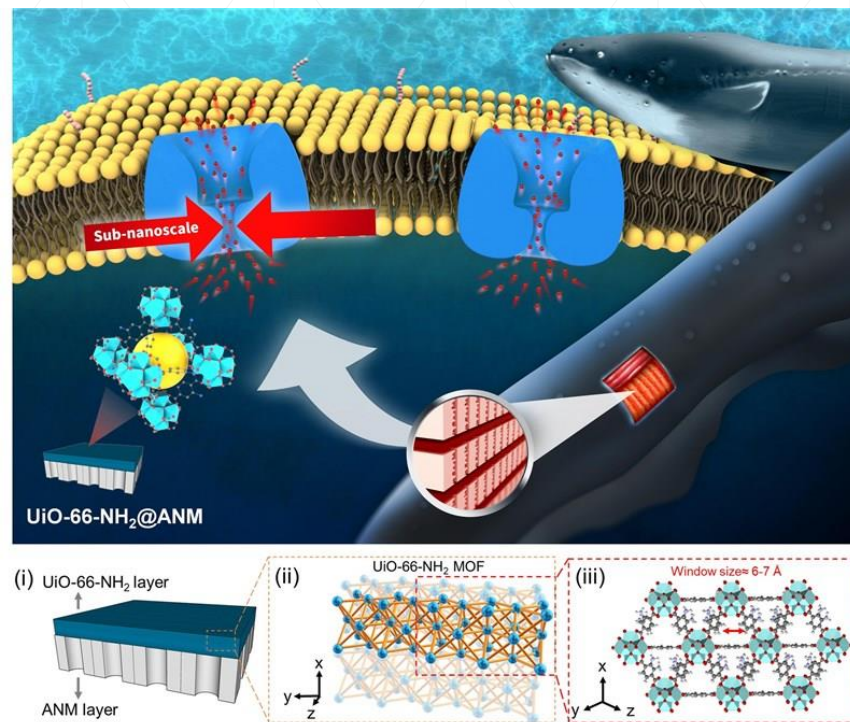
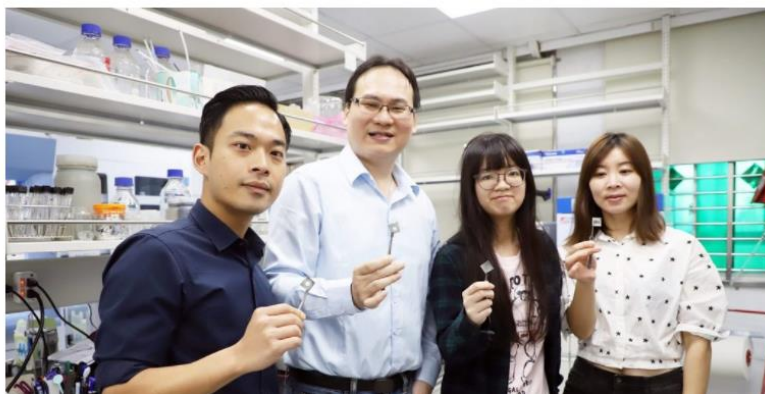
γ_{sL} ... A Solid and Liquid Boundary Tension

$$\gamma_s = \gamma_L \cdot \cos \theta + \gamma_{sL}$$



台科大台大開發仿電鰻異質薄膜 助清淨能源產電

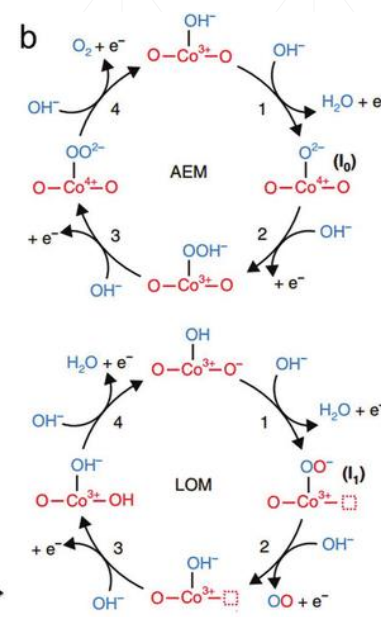
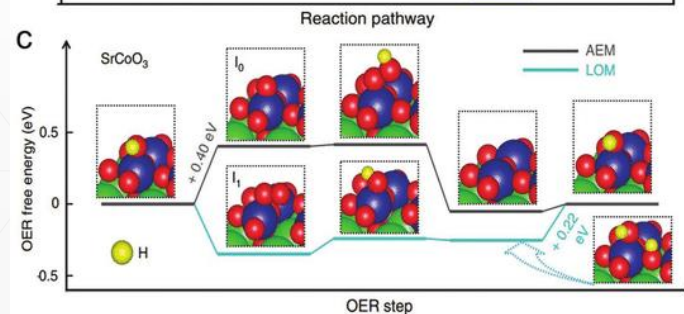
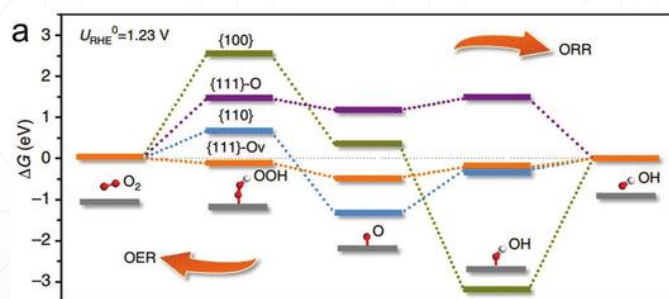
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Chih-Chiang Jiang
Professor

- Catalytic reactions and catalyst design
- Lithium ion batteries and material design
- Photovoltaic devices and material design
- Electrochemical supercapacitors
- Hydrogen storage
- Gas and biomolecule sensing



Team work is a practice in this department !



未來發展

化工系畢業後選擇的路略分為三種，**第一種**：大學畢業後選擇直接投入業界(一般會選擇傳統產業或公職)，優勢是可以從工作中學到較多專業技能且工作穩定，具有公會保障福利，**第二種**：投入科技業，建議取得較高的學歷(碩士、博士)，科技業門檻高相對薪水較優渥，產業變化的速度極快，對於喜愛學習以及吸收能力佳的人較有優勢。**第三種**: 創業!! 化工系的訓練可應用在各種多元的產業!!!

化工國營事業組合：

考試名稱	類組	專業科目		
電油水聯招	化工製成	化學反應工程	單元操作	輸送現象
中鋼	化工	化學分析	化工基本概論	
台灣菸酒	化工	普通化學	分析化學	單元操作
台糖工具	化學工程	普通化學	化工原理	
台灣菸酒評價員	化工技術員	普通化學	分析化學	

薪資標準與報考資格表：

國營事業單位	考試等別	平均月收入(預估值)	考試資格(供)
台灣電力公司	職員	37,180	無
	養成班	30,420	高中職
台灣自來水	職員	38,590	專科
	評價人員	25,930	高中職
台灣菸酒	職員(儲備主管)	104,000	大學
	職員(第3職等人員)	36,000	大學
	評價人員	31,000	高中職；部分類組要求專
台糖公司	職員	35,734	專科
	工具	22,740	高中職
中油公司	職員	37,125	專科
	雇員	27,000	高中職
中鋼公司	師級	36,000	大學
	員級	26,500	高中職



文：2894



台灣積體電路製造股份有限公司
Taiwan Semiconductor Manufacturing Company, Ltd.



台塑企業
FORMOSA PLASTICS GROUP



鴻海科技集團



化工系在學什麼？
念化工不只是學知識，
更要有解決問題的能力！



**Thank you
For Your Attention !**

Min-Hsin Yeh 葉旻鑫

mhyeh@mail.ntust.edu.tw;

Tel: 2737-6643; Office: E2-715-1