

AISSM Faculty Members' Labs Open for Student Exchange (Oct 2022)

Academy of Innovative Semiconductor
and Sustainable Manufacturing, AISSM



Computer Architecture and IC Design Lab

Ing-Chao Lin 林英超, prof., integrated circuit design
(iclin@mail.ncku.edu.tw)

Research topics

- Computer Architecture
- Memory Centric Architecture
- AI Computing Platform and Chip Design



caid.csie.ncku.edu.tw

Bing-Hung Chen's Lab

Bing-Hung Chen 陳炳宏, prof., key materials
(bkchen@ncku.edu.tw)

Research topics

- Interfacial Phenomena
- Heterogeneous Catalyst
- Electroless Plating



<https://researchoutput.ncku.edu.tw/en/persons/bing-hung-chen>

Nanomaterials and Nanocomposites Lab

Su-Wen Hsu 許蘇文, assist. prof., key materials
(10808012@gs.ncku.edu.tw)

Research topics

- plasmonic-based nanocomposites for optical, electric, catalytic, sensing applications



<https://www.che.ncku.edu.tw/index.php?inter=staf&cid=3&kind=%E5%8D%B0%E9%AB%94%E6%9D%90%E6%96%99%E8%88%87%E5%B7%A5%E7%A8%8B&id=104>

Pulsed-Plasma Laboratory (PPL)

Po-Yu Chang 張博宇, assoc. prof., key materials
(pchang@mail.ncku.edu.tw)

Research topics

- EUV light source using discharged-produced plasma
- Magneto-inertial fusion
- Laboratory astrophysics and space sciences
- High-energy-density plasma
- Plasma thruster

About the laboratory

Study various research topics using the pulsed-power system



<https://capst.ncku.edu.tw/PGS/>

Soft Optoelectronics Lab

Jung-Yao Chen 陳蓉瑤, assist. prof., key materials

(jyc@gs.ncku.edu.tw)

Research topics

- Electrospinning and its application on organic optoelectronics
- Novel application of organic-inorganic hybrid perovskite materials
- Non-Volatile Photomemory with Ultrafast and Multi-Level Memory Behavior

About the laboratory

The Soft Optoelectronics Lab (SOL), led by Prof. Jung-Yao Chen, belongs to the Department of Photonics at National Cheng Kung University. Prof. Jung-Yao Chen's research interests are the process design, morphology analysis and optoelectronic applications of photoactive material including conjugated polymer, phosphorescent material and perovskite. Recently, Prof. Jung-Yao Chen's research activity is focused on the development of non-volatile photomemory. The main objective is to explore the mechanisms behind the photo-recording functionality and develop ultrafast responsive photomemory with multi-level memory behavior.



<https://jungyao.wixsite.com/softoptoelectronics/home>

Ya-Ju Lee's Lab

Ya-Ju Lee 李亞儒, prof., key materials

(yjlee@gs.ncku.edu.tw)

Research topics

- Optoelectronic devices



<https://yajuleelab.wordpress.com>

Lab for Nanomaterials and Semiconductors

Chuan-Pu Liu 劉全璞, prof., semiconductor packaging and testing

(cpliu@mail.ncku.edu.tw)

Research topics

- Si anode for Lithium Ion Battery
- Thin film Lithium Ion Battery
- SiC powders and SiC crystal growth
- Recycle of Si waste for Hydrogen production
- Energy nanogenerator by piezoelectricity, triboelectricity and thermoelectricity
- Self-powered sensors for pressure, gas and optics
- Piezotronic diode and transistors for catalysis and PEC water splitting
- In-situ high resolution transmission electron microscopy



<https://office.mse.ncku.edu.tw/nanosemi/>

Laboratory for micro/nanofabrication and nanoanalysis

Bernard-Haochih Liu 劉浩志, prof., semiconductor packaging and testing (hcliu@mail.ncku.edu.tw)

Research topics

- SPM-based materials characterization, microfabrication, 3D printing



<http://lmnn.mse.ncku.edu.tw/advisor>

Organic Crystal Materials Lab

Jr-Jeng Ruan 阮至正, assoc. prof., semiconductor packaging and testing (jrjeng@ncku.edu.tw)

Research topics

- Epitaxial Crystallization and Organic/Inorganic Hybrid Composites
- Green Energy Materials
- Liquid Crystalline Materials
- Organic Optoelectronic Materials
- Phase Behavior, Organization of Organic Molecules, and Polymer Physics
- Wide Angle X-Ray Diffraction and Small-Angle Scattering
- Polymer Composites and Solid State Physics



<https://ocml5566.wixsite.com/mysite>

Polymer Processing Lab of Mechanical Engineering Department

Sheng-Jye Hwang 黃聖杰, prof., semiconductor packaging and testing (jimppl@mail.ncku.edu.tw)

Research topics

- Computer aided engineering of Packages
- Simulation of Manufacturing Process of Packages

About the laboratory

30 years of experience in modeling the manufacturing processes of packages including mold filling, warpage analysis, post mold cure and reliability analysis of packages



<https://mtrdc.web2.ncku.edu.tw/p/412-1150-23632.php?Lang=zh-tw>

Computing and Advanced Memory Laboratory (CAML)

Chao-Hung Wang 王超鴻, assist. prof., semiconductor manufacturing technology (chwang@gs.ncku.edu.tw)

Research topics

- Emerging Non-Volatile Memory Materials and Devices
- Computing-in-memory: Devices and Simulation, Neuromorphic
- Computing: Memory Devices and Simulation
- Next Generation Semiconductor Materials and Devices



<https://sites.google.com/gs.ncku.edu.tw/chaohungwang/bio>

System on Chip Laboratory

Meng-Hsueh Chiang 江孟學, prof., semiconductor manufacturing technology (mhchiang@mail.ncku.edu.tw)

Research topics

- Semiconductor Devices Modeling and Simulation



https://www.ee.ncku.edu.tw/en/teacher/index2.php?teacher_id=72

Electrochemistry & Nanomaterials for Sensing, Energy, and Catalysis

Chia-Yu Lin 林家裕, assoc. prof., smart and sustainable manufacturing (cyl44@mail.ncku.edu.tw)

Research topics

- (Photo-)electrocatalysis, electroanalysis, electrochemical sensing, chemiresistive gas sensors

About the laboratory

We focus on developing novel conformal deposition techniques, the design of electrocatalytic nanomaterial, and strategic integration to breakthrough the existing challenges in the fields of electrochemical sensing, energy conversion, and photo-electrocatalysis.



<https://sites.google.com/site/functionalnanomaterialslab/home>

Green Energy and Systems Engineering

Wei Wu 吳煒, prof., smart and sustainable manufacturing (weiwu@gs.ncku.edu.tw)

Research topics

- Process design
- CO₂ capture and utilization
- Machine Learning
- Circular economy

About the laboratory

Green Energy and Systems Engineering



<http://sites.google.com/view/weiwulab/home>

Lab of Resources Circulation

Wei-Sheng Chen 陳偉聖, assoc. prof., smart and sustainable manufacturing (kenchen49@gmail.com)

Research topics

- Resources recycling and circulation



<https://mp.ncku.edu.tw/en/wei-sheng-chen/>

Laboratory for Artificial Intelligence and Multiscale Modeling

Chi-Hua Yu 游濟華, assist. prof., smart and sustainable manufacturing (jonnyyu@gs.ncku.edu.tw)

Research topics

- Artificial intelligence, material modeling, simulation



<https://laimm.net/>

Novel EXperimental & Theoretical Group for Materials Design

Shih-kang Lin 林士剛, prof., smart and sustainable manufacturing (linsk@mail.ncku.edu.tw)

Research topics

- Electronic interconnection, batteries, steel and ironmaking, computational thermodynamics, alloy design



<https://next-gmaterialdesign.wixsite.com/aslmtg>

System Dynamics Laboratory - for Mechatronics and Microsystems

Kuo-Shen Chen 陳國聲, prof., smart and sustainable manufacturing (kschen@mail.ncku.edu.tw)

Research topics

- smart manufacturing
- packaging analysis



https://en.me.ncku.edu.tw/content_teacher_detail.php?teacher_rkey=007P616ZL7