AISSM | Academy of Innovative Semiconductor and Sustainable Manufacturing

國立成功大學智慧半導體及永續製造學院

Priority Advisor at AISSM
Full-Time Faculty List & Introduction

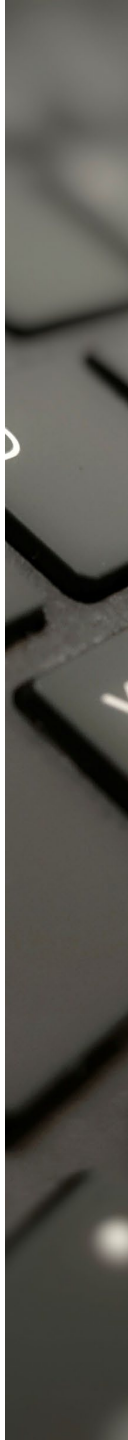
晶片設計
Program on Integrated Circuit Design

半導體製程
Program on Semiconductor Manufacturing Technology

半導體封測
Program on Semiconductor Packaging and Testing

關鍵材料
Program on Key Materials

智慧與永續製造
Program on Smart and Sustainable Manufacturing



2026.02 Version

AISM | Academy of Innovative Semiconductor and Sustainable Manufacturing

國立成功大學智慧半導體及永續製造學院

KMAT

關鍵材料

Program on Key Materials

Full-Time Faculty

關鍵材料
KMAT

周明奇 講座教授

Chair Prof. Mitch Ming-Chi Chou

Email: z11308043@ncku.edu.tw

Personal Websites:
https://reurl.cc/qGxNky
https://crystal.nsysu.edu.tw/

研究領域 Research Areas

- 晶體生長 Crystal growth
- 次世代半導體材料(SiC, Ga2O3) Next-generation semiconductor(SiC, Ga2O3)
- 光電材料 Electro-optic materials

獲獎紀錄 Awards

- The Award for Outstanding Contribution in Science and Technology, Executive Yuan, 2014
- The Outstanding Research Award, Ministry of Science and Technology, 2011 & 2014

研究計畫 Research Projects

2006-2018 Visiting Scholar to German institutes, including:
- Max Planck Institute for Solid State Research (MPI), Stuttgart
- Karlsruhe Institute of Technology (KIT), Karlsruhe, Baden-Württemberg
- Institute of Crystal Growth (IKZ), Berlin
- Paul Drude Institute for Solid State Electronics (PDI), Berlin

2021 - 2022 Visiting Scholar, Institute of Solid State Physics, Riga, Latvia

2019 - present Jointly Appointed Research Fellow, Institute of Physics, Academia Sinica, Taiwan

2008 - 2015 Technical Consultant, Korea Atomic Research Institute, Korea

2004 - present **Total NSTC project funding > 200 million NTD**

學術企業合作 Academia-industry Collaboration

- **Over 200 million NTD in Technology transfer funding & projects from industry.**
- Collaborated companies: **Largan Precision CO., LTD./ Taiwan Applied Crystal CO. LTD.**
- Continuous collaboration with the LED, semiconductor, chemical engineering, electronics, and photonics industries and equipment vendors.

關鍵材料
KMAT

李亞儒 教授

Prof. Ya-Ju Lee

Email: yjlee@gs.ncku.edu.tw

Personal Websites:
https://yajuleelab.wordpress.com/

研究領域 Research Areas

- 半導體光電元件 Semiconductor Optoelectronic Devices
- 仿生神經元件與計算Neuromorphic Computing
- 凝態物理 Condensed Matter Physics

研究計畫 Research Projects

- 鈣鈦礦量子點結合塔米電漿子於免彩濾光片影像感測與光學突觸臉部識別之應用(一般研究計畫) Application of Perovskite Quantum Dots Combined with Tamm Plasmons in Color-Filter-Free Image Sensing and Optical Synapse-Based Facial Recognition
- 室溫鈣鈦礦量子點極化子凝聚態於全光式電晶體之研究與應用(優秀年輕學者計畫) Study and Application of Room-Temperature Perovskite Quantum Dot Polariton Condensates in All-Optical Transistors
- 全無機鈣鈦礦量子點於仿生視神經突觸元件之開發研究(一般導向專案研究計畫) Development of All-Inorganic Perovskite Quantum Dots for Bio-Inspired Visual Synaptic Devices

合作企業Corporate Collaborators

- 台積電前瞻研究(TSMC ARP) TSMC Advanced Research Project

關鍵材料
KMAT

郭政煌 教授

Prof. Cheng-Huang Kuo

Email: chkuoncu@gmail.com

Personal Websites:

研究領域 Research Areas

- III-V族半導體材料磊晶成長 Epitaxial Growth of III-V Compound Semiconductor Materials
- 寬能隙半導體材料磊晶成長(SiC, Ga2O3) Epitaxial Growth of Wide bandgap (WBG) semiconductors Materials
- 二維材料磊晶成長(WS2, WSe2) Epitaxial Growth of 2D Material
- 光電元件 Optoelectronic Devices
- 量產型有機金屬化學氣相沉積設備開發 Development of Mass Production MOCVD

研究計畫 Research Projects

- 1. 8吋GaN有機金屬化學氣相沉積設備開發 Development of 8” GaN Material MOCVD
- 2. 8吋SiC化學氣相沉積設備開發 Development of 8” SiC CVD
- 3. 8吋SiC 磊晶技術 8” SiC Epitaxial Technology

關鍵材料
KMAT

郭家農 副教授

Assoc.Prof. Chia-Nung Kuo

Email: kuochianung@gmail.com

Personal Websites:

研究領域 Research Areas

- 單晶成長技術 Single-crystal growth techniques
- 固態核磁共振 Solid-state nuclear magnetic resonance (NMR)
- 新穎材料開發 Novel material design and synthesis

研究計畫 Research Projects

- 拓樸催化材料之單晶成長(2/2) (2024/08/01~2026/07/31)

獲獎紀錄 Awards

- 2015年科技部博士後學術著作獎
- 2010年研究生優良論文獎佳作
- 2007年物理年會壁報佳作
- 自由時報報導https://news.ltn.com.tw/news/life/breakingnews/4954565

AISM | Academy of Innovative Semiconductor and Sustainable Manufacturing

國立成功大學智慧半導體及永續製造學院

PSPT

半導體封測

Program on Semiconductor Packaging and Testing

Full-Time Faculty

半導體封測
PSPT

謝昱銘 助理教授

Asst. Prof. Yu-Ming Hsieh

Email: 11108059@gs.ncku.edu.tw

Personal Websites:
https://reurl.cc/xNyo8E

研究領域 Research Areas

- 預測保養 Predictive Maintenance
- 良率管理 Yield Management
- 虛擬量測 Virtual Metrology
- 半導體產業智慧製造應用 Smart Manufacturing Applications in Semiconductor Industry
- 生成式 AI Generative AI

研究計畫 Research Projects

- 研發基於卷積神經網路之批次反應溫度調整架構 Development of a Batch Reaction Temperature Adjustment Framework Based on Convolutional Neural Networks
- 工業4.2電子產業供應鏈創新智能、低碳技術研發(1/3)- Industry 4.2: R&D of Innovative, Intelligent, and Low-Carbon Technologies for the Electronics Industry Supply Chain (1/3)

合作企業Corporate Collaborators

- 日月光 ASE Technology Holding Co., Ltd
- 申豐特用應材股份有限公司 Shin Foong Specialty & Applied Materials Co., Ltd.
- 緯創資通 Wistron Corporation
- 均豪精密工業 Gallant Precision Machining Co., Ltd.
- 台塑新智能 Formosa Smart Energy

AISM | Academy of Innovative Semiconductor and Sustainable Manufacturing

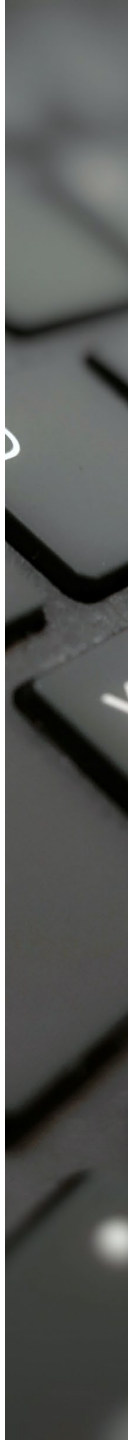
國立成功大學智慧半導體及永續製造學院

PSSM

智慧與永續製造

Program on Smart and Sustainable Manufacturing

Full-Time Faculty



智慧與
永續製造
PSSM

水野潤 教授

Prof. Jun Mizuno

Email: junmizuno@gs.ncku.edu.tw

Personal Websites:
https://reurl.cc/dQE8ry

研究領域 Research Areas

- 元件科學 Device Science
- 微機電之奈微元件開發 Micro-Components for MEMS
- 表面科學 Surface Science
- 數值模擬 Numerical simulation
- 可撓式元件開發 Flexible Components Development
- 電子構裝 Electronic Packaging
- 先端醫療元件 Advanced Medical Components

研究計畫 Research Projects

- Evaluation of VUV surface treatment technology
- Regulation of Osseointegration Using Precise and Regulated Nanostructured Titanium
- Research on Microfluidics for extremely high-power density PKGS
- Fabrication of Artificial Intervertebral Discs that Match the Stiffness of the Human Body Simulator
- RF Device Fundamental Research and Development
- Glass Interposer Research and Development
- 3D-AXIS Application Development for Advanced Semiconductors
- New design in the interlayer in TGV for reducing residual stress
- Development of Resin-Based Hybrid Bonding for Stacked Semi. Chips
- Evaluation of surface treatment for TGV substrates

合作企業Corporate Collaborators

Foreign Company：
ASML, Bosch, Toray, Toray Engineering, AGC, OMRON, Lintec, Okuno Chemical Industry, Nissan Chemical, Adachi Electronic, Creative coatings, Canon, Parker

Domestic Company and Institute：
ASE, Innolux, Either Tech, TSRI, ITRI

智慧半導體及永續製造學院
Academy of Innovative Semiconductor and Sustainable Manufacturing

智慧與
永續製造
PSSM

歐庭嘉 助理教授

Asst. Prof. Ting-Chia Ou

Email: outc@gs.ncku.edu.tw

Personal Websites:
https://reurl.cc/3K0meL
https://reurl.cc/zqvX6p
Lab info video：https://reurl.cc/gnzVvL

研究領域 Research Areas

- 綠色能源科技 Green Energy
- 新型智慧能源管理系統 Smart Energy Management Systems
- 微電網/智慧電網/智慧型虛擬電廠 Microgrids / Smart Grids / Virtual Power Plants
- 碳中和/CCUS/負碳排技術 Carbon Neutrality / CCUS / Negative Emission Technologies
- 太陽光電/風光互補/儲能系統之系衝分析 PV/Wind-Storage Hybrid System Analysis
- AI辨識與最佳化(太陽能模組、微藻、碳權) AI Recognition and Optimization (Solar, Microalgae, Carbon Credit)
- 波浪發電 Wave Energy
- 軌道機電/號誌系統 Railway Electromechanical/Signal Systems
- 淨零科技導入ESG ESG-Based Net-Zero Technology
- 淨零建築 Net-Zero Energy Building
- 氫能與燃料電池 Hydrogen Energy and Fuel Cells
- 電動車 Electric Vehicles
- 波浪能與風能整合系統 Wave-Wind Hybrid Energy Systems

研究計畫 Research Projects

- Intelligent Energy-Saving and Carbon-Reducing Adjustment System with a Set of Carbon-Fixation Biological Negative-Emissions Devices for Microalgae Cultivation (ESCRA)
- Integrating intelligent automated renewable energy prediction technology into the application of microgrids
- Impact Analysis of Cogeneration System Interconnection
- Impact Study of Integrated Wind and Solar PV Systems on 161kV Grid
- Development of AI Recognition System for Solar PV

合作企業Corporate Collaborators

- Influence Technology Co., Ltd.
- Jin Cheng Electrical Engineers Office
- Rock Solid Energy Co., Ltd.
- Asahi Energy Co., Ltd.
- Taiwan Energy Technology Engineering Co., Ltd.

AISM | Academy of Innovative Semiconductor and Sustainable Manufacturing

國立成功大學智慧半導體及永續製造學院

PSMT

半導體製程

Program on Semiconductor Manufacturing Technology

Full-Time Faculty

半導體製程
PSMT

蘇炎坤 約聘講座

Chair Prof. Yan-Kuin Su

Email: yksu@mail.ncku.edu.tw

Personal Websites:
https://www.ee.ncku.edu.tw/teacher/index2.php?teacher_id=80

研究領域 Research Areas

- 半導體工程與元件 Semiconductor Engineering and Devices
- 光電元件 Optoelectronic Devices
- 微波元件 Microwave Devices

獲獎紀錄 Awards

- IEEE Life Fellow、OSA、SPIE Fellow
- 中國電機工程學會獎章、台灣真空學會獎章、台灣光電學會獎章Medal of the Chinese Society for Electrical Engineering, Medal of the Taiwan Vacuum Society, Medal of the Taiwan Photonics Society,
- 2025全球前 2% 頂尖科學家 World's Top 2% Scientists 2025

研究計畫 Research Projects

- 以原子層沈積法磊晶三族氮化物半導體及其高電子遷移率電晶體元件之製作
  Epitaxial Growth of III-Nitride Semiconductors via Atomic Layer Deposition and Fabrication of Its High Electron Mobility Transistor Devices
- 具光源輔助模組之氮化物原子層磊晶設備開發與應用研究
  Development and Application of a Photo-Assisted Atomic Layer Epitaxy System for III-Nitride
- 化合物半導體及先進封裝技術開發與系統整合應用
  Development and system integration of compound semiconductors and advanced packaging technologies

近期發表論文 Recent Publications

- Improved Resistive Switching Characteristics by O2 Plasma Treatment in Tri-Layer HfO2 /Al2 O3 /HfO2 RRAM
- Improved Performance of AlGaInP Red Micro Light-Emitting Diodes by Sidewall Treatments of Citric Acid

半導體製程
PSMT

鄭樵陽 副教授

Assoc. Prof. Chiao-Yang Cheng

Email: Tom.cycheng@gmail.com

Personal Websites:

研究領域 Research Areas

- 碳化矽元件關鍵製程研究與開發 Research of Key SiC Device Processes for power application
- 碳化矽晶圓製作與磊晶成長 SiC wafering process and Epitaxial growth
- 寬能隙半導體元件製作開發 Development of Wide-Bandgap Power Device Fabrication
- 絕緣覆矽基板製作技術開發與應用 Development and Application of Silicon-on-Insulator (SOI) Substrate Fabrication Technology
- 超快雷射於半導體製程之開發與應用 Development and Application of Ultrafast Laser in Semiconductor Processes

研究計畫 Research Projects

- 碳化矽晶圓表面改質技術開發計畫 SiC Wafer Surface Modification Technology Development Project
- 碳化矽晶圓製造智慧化升級計畫 SiC Wafer Smart Manufacturing Upgrade Project
- 碳化矽晶圓表面改質技術開發計畫 SiC Wafer Surface Modification Technology Development Project
- 雷射智慧化銲接設備建置計畫 Laser Intelligentized Welding Equipment Establishment Project
- A⁺企業創新研發淬鍊計畫-物聯網產業使用半導體元件尖端矽基材技術開發 (SOI基板應用開發) A+ Enterprise Innovation and R&D Enhancement Project - Advanced Silicon-Based Material Technology Development for IoT Industry Semiconductor Devices (SOI Substrate Application Development)

合作企業Corporate Collaborators

- 格棋化合物半導體-GaN HEMT應用基板開發 (MOU) GeChi Compound Semiconductor Co., Ltd.
- 正鉑雷射科技股份有限公司 JUMBO LASER CO.,LTD.

半導體製程
PSMT

Shyamal K. Saha

Professor

Email: sksaha@gs.ncku.edu.tw

Personal Websites:
https://reurl.cc/VYreZn

***Required to co-advise with one or more faculty members.**

研究領域 Research Areas

- 二維材料Two-Dimensional Materials (Graphene, MoS2, MXene, Graphitic Carbon Nitride)
- 能源儲存材料與元件Energy Storage Materials & Devices
- MoS2薄膜電晶體與光偵測器MoS2 based TFT and Photodetectors
- 記憶(自旋電子)元件Memory (Spintronic) Devices

研究計畫 Research Projects

- 2D Materials based energy storage devices
- MoS2 based Thin film transistor and photodetector

近期發表論文 Recent Publications

- Sulfur-tuned MoS_2 quantum dot decorated $Ti_3C_2T_x$ (MXene) electrode materials for high performance supercapacitor applications; ***Journal of alloys and Compounds***, 985 (2024) 174010
- Facile in-situ growth of spore-like silica on layered MXene sheets for extraordinary Supercapacitor Applications"；***Electrochimica Acta*** 465, 142983 (2023)
- Photoluminescence and photo-induced conductivity in 2D siloxene nanosheet for optoelectronic applications; S. Mondal, T. K. Mondal, Y. K. Su, and S. K. Saha, ***J. Colloid Interface Sci.,*** 562, 453-460 (2020)

AISM | Academy of Innovative Semiconductor and Sustainable Manufacturing

國立成功大學智慧半導體及永續製造學院

PICD

晶片設計

Program on Integrated Circuit Design

Full-Time Faculty

晶片設計
PICD

李昆忠 特聘教授

Dist. Prof. Kuen-Jong Lee

Email: kjlee@mail.ncku.edu.tw

Personal Websites:
https://www.ee.ncku.edu.tw/teacher/index2.php?teacher_id=38

研究領域 Research Areas

- 超大型積體電路設計與測試VLSI Design and Testing
- 先進製程錯誤診斷Diagnosis of Advanced Process Technology
- 硬體資安Hardware Security
- 機器人晶片 Robotics chip

獲獎紀錄 Awards

- 電子工程師學會終身會士IEEE Life Fellow
- 旺宏金矽獎優勝獎Macronix Golden Silicon Award – Excellence Award

研究計畫 Research Projects

- 臺灣晶片技術共研基地辦公室先期規劃計畫 Preliminary Planning Project for the Taiwan Chip Technology Co-Research Center Office (2025/02~2025/10)
- 高安全性物聯網裝置之開發平台 Development Platform for High-Security Internet of Things (IoT) Devices (2022/08~2025/07)
- 先進製程技術之測試晶片設計及標準元件之測試與診斷流程開發 (2022/08~2024/07)

合作企業Corporate Collaborators

- 台積電 tsmc (3DIC Testability and Diagnosability enhancement for Heterogenous chips, supported by Taiwan Semiconductor Manufacturing Co. 2023/03~2025/02)
- Qualcomm Co., USA. (High-security and low-power design & test technologies for SOC in IoT edge nodes, 2022/07~2024/06)