INTRODUCTION

關於本院

ACADEMIA SINICA TAIWAN

中央研究院 ACADEMIA SINICA

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中央研究院創立於 1928 年,為我國學術研究最高機關。本院現有數理科學、生命科學、人文及社會科學三學組,設有 33 個研究所及研究中心,是國際間少見兼顧自然科學及人文與社會科學均衡發展的研究型機構。另設有學術諮詢總會及院本部,負責議定本院學術計畫、促進國內外學術合作及學術行政工作。設置 2 個院區,分別位於臺北市南港及臺南市沙崙的南部院區。

本院以「成就全球頂尖研究」、「善盡社會關鍵責任」, 以及「延攬培育卓越人才」三項院務發展目標,引領國 家永續發展,提升整體研究水準,進而貢獻社會,造福 人群。

Founded in 1928, Academia Sinica is Taiwan's preeminent academic institution. Academia Sinica currently has 33 institutes and research centers located in three divisions: Division of Mathematics and Physical Sciences, Division of Life Sciences, and Division of Humanities and Social Sciences. In addition, the Central Academic Advisory Committee and the Central Administrative Office have been established to formulate research plans and promote scholarly collaboration, as well as manage academic administration. Academia Sinica operates two campuses: one situated in Nangang, Taipei, and the other in Shalun, Tainan, referred to as the South Campus.

Academia Sinica aspires to lead national sustainable development and enhance research standards by attaining three strategic objectives: 1) Achieve excellence; 2) Fulfill social responsibilities; and 3) Cultivate top talent.

南部院區

Academia Sinica South Campus

本院於臺南沙崙設立南部院區,延伸研究能量,均衡臺灣科研發展。2024年成立關鍵議題研究中心並進駐南院,鎖定國家社會關鍵議題,以任務導向模式垂直整合基礎研究到實際應用,現已有量子科技、淨零碳排、海洋能等團隊進駐。

南部院區重視在地連結,投入農業生技及永續科學,並成立「人文社會研究基地」及建置「數位圖書檔案室」,與南部學術社群建立更緊密的合作關係,強化學術動能。

In Tainan's Shalun area, the Academia Sinica South Campus extends Academia Sinica's research capabilities and balances Taiwan's scientific development across the country. Established in 2024, the Research Center for Critical Issues located here focuses on critical social issues, adopting a task-oriented approach that integrates basic research and practical applications. Teams specializing in quantum technology, carbon neutrality, and marine energy have been established on site.

The South Campus emphasizes local connections, investing in agricultural biotechnology and sustainable science, and has established the Research Hub for Humanities and Social Sciences and the Digital Library and Archive. These initiatives strengthen academic dynamics through close cooperation with the southern academic community.

國家生技研究園區

National Biotechnology Research Park

國家生技研究園區為我國第一個跨產官學研共同進駐之新一代國家級生醫研究生態圈,匯聚創新研究、法規諮詢、動物試驗、藥品開發等多元功能,並專注於新藥、試劑、疫苗等轉譯研發工作。本院生醫轉譯研究中心自 2020 年起進駐園區,負責推動創新生技產業的發展及維護園區生態環境的平衡。藉由整合式的資源與平台,協助生技新創人才與團隊加速達成其產品化的進程,促進基礎研究成果的活用,以提升臺灣生醫產業之國際競爭力及產出。

The National Biotechnology Research Park (NBRP) is Taiwan's first next-generation national biomedical research ecosystem, combining academic, government, and industry sectors. It encompasses diverse functions such as innovative research, regulatory consultation, animal testing, and pharmaceutical development, focusing on translational research and development of new drugs, reagents, and vaccines.

Since 2020, the Biomedical Translation Research Center at Academia Sinica has been based in NBRP, driving the development of the innovative biotechnology industry and maintaining the ecological balance of the park. By leveraging integrated resources and platforms, the center assists biotech startups in accelerating the commercialization process, promoting the application of basic research findings, and enhancing the international competitiveness of Taiwan's biomedical industry.



組織架構 Organization



院本部

Central Administrative Office



數據一覽

At a Glance

02 院區 Campuses



研究所



研究中心 Research Centers



展覽館





人數統計

Personnel



智財技轉

Intellectual Property and Technology Transfers

1,776

件獲證專利,涵蓋44國(地區)

Certified Patents, covering 44 countries and regions

2,456

件與國內外產業界簽訂科技移轉合約

Technology Transfer Agreements with industries in Taiwan and beyond

統計至 2024 年 8 月底 (As of August 2024)

國際合作

International Collaboration

國家(地區)

Countries (Reigons)

所國內、外學術研究機構

Academic and Research Institutions

已簽署合作協議 Cooperation Agreements

獲獎情形

Awards and Honors

本院院十國際學術殊榮

AS Academicians' International Scholarly Awards and Honors



- 美國國家科學院院士

National Academy of Sciences Members

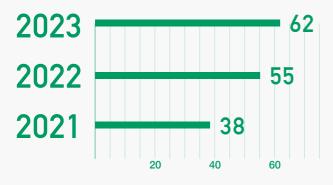
- 美國國家工程學院院士 National Academy of **Engineering Members**
- 美國國家醫學院院士 National Academy of Medicine Members
- 美國藝術與科學院院士 The American Academy of
- 世界科學院院士

The World Academy of Sciences Elected Members

Arts and Sciences Members

● 近年重要國內獲獎情形

Major Domestic Awards Received by AS Researchers



■ 獲獎人數 Number of Recipients

● 近年重要國際榮譽

Major International Awards and Honors Received by AS Researchers

2024

歐洲分子生物學組織 外籍院士 EMBO Associate Member

廖俊智 院長

President | James C. Liao

英國國家學術院 國際院士
British Academy International Fellow

王德威 院士、陳祖為 特聘研究員

Academician | David Der-wei Wang Distinguished Research Fellow | Joseph Cho-Wai Chan

統計至 2024 年 8 月底 (As of August 2024)

2023

國際代謝工程學會 史蒂法諾普洛獎

Gregory N. Stephanopoulos Award for Metabolic Engineering

廖俊智 院長

President | James C. Liao

● 近年重要國際榮譽

Major International Awards and Honors Received by AS Researchers

2023

以色列化學會 International Barry Cohen Award

Israel Chemical Society International Barry Cohen Award

翁啟惠 院士

Academician | Chi-Huey Wong

亞洲化學聯合會 Foundation Lectureship Award

Federation of Asian Chemical Societies (FACS) Foundation Lectureship Award

翁啟惠 院士

Academician | Chi-Huey Wong

世界科學院 TWAS 生物科學獎

The World Academy of Sciences (TWAS) Award in Biology Science

藝官芳 院士

Academician | Yi-Fang Tsay

歐洲劇烈風暴實驗室尼可萊・鐸切克獎

European Severe Storm Laboratory (ESSL) Nikolai Dotzek Award

王寶貫 院士

Academician | Pao-Kuan Wang

● 近年重要國際榮譽

Major International Awards and Honors Received by AS Researchers

2023

國際黴漿菌學組織 Derrick Edward Award

International Organization for Mycoplasmology (IOM) Derrick Edward Award

郭志鴻 研究員

Research Fellow | Chih-Horng Kuo

歐洲分子生物學組織 全球研究學者

EMBO Global Investigator

何金敏 副研究員、涂熊林 副研究員 林倩伶 助研究員

Associate Research Fellow | Chin-Min Kimmy Ho, Hsiung-Lin Tu Assistant Research Fellow | Chien-Ling Lin

美國李氏傳統基金會獎

Li Foundation Heritage Prize

江奕寬 助研究員

Assistant Research Fellow | Yi-Kuan Chiang

德國宏博研究獎

Humboldt Research Award

王汎森 院士

Academician | Fan-Sen Wang

● 近年重要國際榮譽

Major International Awards and Honors Received by AS Researchers

2022

四面體獎

Tetrahedron Prize

翁啟惠 院士

Academician | Chi-Huey Wong

美國化學先驅獎

Chemistry Pioneer Award

翁啟惠 院士

Academician | Chi-Huey Wong

歐洲分子生物學組織 全球研究學者

EMBO Global Investigator

陳振輝 副研究員、顧銓 副研究員

Associate Research Fellow | Chen-Hui Chen, Chuan Ku

美國植物生物學會 海外終身通信會員獎

The ASPB Enid MacRobbie Corresponding Membership

邱子珍 特聘研究員

Distinguished Research Fellow | Tzyy-Jen Chiou

● 近年重要國際榮譽

Major International Awards and Honors Received by AS Researchers

2022

美國李氏傳統基金會獎 Li Foundation Heritage Prize

孔令偉 助研究員

Assistant Research Fellow | Ling-Wei Kung

中央研究院 ACADEMIA SINICA

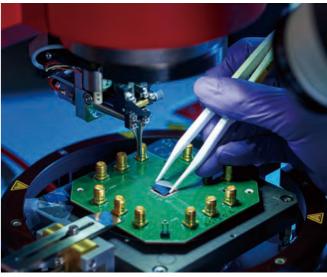


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自研自製 5 位元超導量子電腦

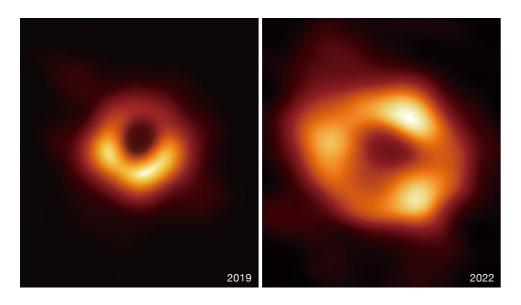
Self-Developed 5-Qubit Superconducting Quantum Computer

2023 年我國成功研發第一個 5 位元量子晶片,物理研究所暨關鍵議題研究中心陳啟東特聘研究員團隊掌握核心關鍵技術,建立國內量子電腦生態系的最佳平台,並於 2024 年推出該量子電腦系統於雲端供計畫合作者測試,加入少數能自製超導量子電腦國家之林。

本院在量子電腦晶片設計、製作,以及在量子位元的狀態控制和讀取技術等關鍵議題累 積研發能量。未來於南部院區的量子基地持續投入資源,打造國家級量子科技研究基地, 並與國內產學研界合作,垂直整合關鍵議題從基礎研究到實際應用產出。

In 2023, Taiwan successfully developed the first 5-qubit quantum chip. Led by Distinguished Research Fellow Chii-Dong Chen from the Institute of Physics and the Research Center for Critical Issues, the research team mastered the core technologies and established the optimum platform for the domestic quantum computer ecosystem. In 2024, the self-developed 5-qubit superconducting full-stack quantum computer is available online for project collaborators to test and use, an inspirational moment for quantum technology research in Taiwan.

Academia Sinica has accumulated substantial research and development capabilities in quantum technology over the years, including key areas such as chip design, fabrication, and qubit state control and readout technology. Academia Sinica will continue to invest in the Quantum Technology research center at the Academia Sinica South Campus, integrating key issues from fundamental research to practical applications and fostering collaboration between academia and industry.



Division of Mathematics and Physical Sciences

參與 EHT 觀測計畫 發表黑洞影像

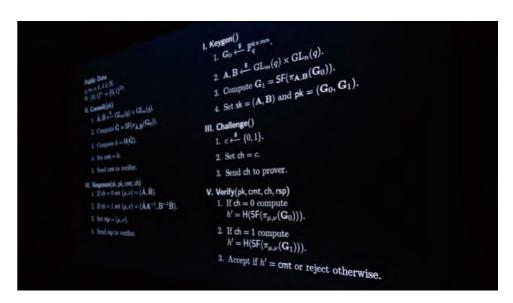
Participation of the Event Horizon Telescope (EHT) Collaboration and the Release of the Black Hole Images

天文及天文物理研究所參與的「事件視界望遠鏡(Event Horizon Telescope, EHT)」國際合作計畫,暨 2019 年公布史上首張黑洞影像,更於 2022 年公布銀河系中心超大質量黑洞的首張影像,這也是人類史上看到的第二個黑洞。天文所主導的格陵蘭望遠鏡,也在 2024年 EHT 發表的 M87 星系中心黑洞的最新影像中扮演重要角色,於成像方面發揮關鍵作用。

「事件視界望遠鏡」以獲取黑洞影像為首要目標,藉由分佈全球的電波望遠鏡,形成與地球一樣大的虛擬陣列,達到前所未有的解析力。本院不僅為負責黑洞首次成像的 4 個團隊之一,更是 EHT 陣列中 4 座成員望遠鏡(SMA、ALMA、JCMT 及 GLT)的重要合作夥伴。臺灣對取得黑洞影像的觀測、資料分析、影像處理、和理論解釋,均具卓越貢獻。

The first ever direct visual evidence of a supermassive black hole and its shadow was released in 2019 by the EHT Collaboration, a joint effort involving the Institute of Astronomy and Astrophysics (ASIAA). In 2022, the EHT Collaboration also unveiled the first image of the supermassive black hole at the center of our own Milky Way galaxy, the second black hole imaged in human history. In 2024, the EHT Collaboration published second year (2018) observations of the M87 black hole, in which the Greenland Telescope (GLT) led by ASIAA plays a critical role in imaging.

Designed to capture images of a black hole, the EHT synchronizes ground-based radio telescope facilities around the world and utilizes our planet's rotation to form an Earth-sized virtual array with unprecedented sensitivity and resolution. Academia Sinica led one of the four teams that performed the imaging of the first black hole image, and is also an important partner of four of the eleven facilities in the EHT array: SMA, ALMA, JCMT, and GLT. Taiwan contributed significantly to black hole's observations, data analysis, imaging, and theoretical interpretation.



後量子密碼學突破 MEDS 簽章系統

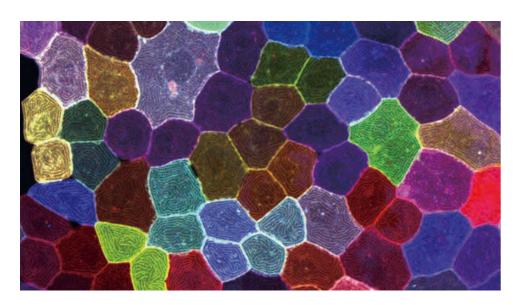
Breakthrough in Post-Quantum Cryptography Achieved with MEDS Signature Scheme

為迎接後量子密碼學時代,美國國家標準與技術研究院(NIST)自 2017 年啟動後量子密碼學和簽章系統的標準化流程競賽,並於 2023 年啟動了針對簽章系統的追加競賽, MEDS (Matrix Equivalence Digital Signature)為此追加競賽的候選簽章系統之一。

為開發 MEDS 簽章系統,資訊科學研究所倪儒本副研究員及資訊科技創新研究中心周彤助研究員團隊,使用尋找兩個等效矩陣秩度量碼之間的等距的數學問題來建立「線上」Sigma 協議,此數學問題對於經典計算和量子計算來說都相當困難。研究團隊在使用該 Sigma 協定於Fiat-Shamir 變換的幫助下獲得「離線」簽章系統,優化現有計算方式與數據規模,取得後量子密碼學突破。

The National Institute of Standards and Technology (NIST) in the USA started a standardization process for Post-Quantum Cryptography (PQC) encryption and signature schemes in 2017 with an on-ramp of additional signature schemes in 2023. The signature scheme, Matrix Equivalence Digital Signature (MEDS), is one of the cryptographic systems in the PQC standardization process of the NIST.

Associate Research Fellow Ruben Niederhagen from the Institute of Information Science and Assistant Research Fellow Tung Zhou from the Research Center for Information Technology Innovation joined a research team to construct the MEDS. They find an isometry between two equivalent matrix rank-metric codes, which is difficult for both classical and quantum computers, to construct an "online" Sigma protocol. They then use this Sigma protocol to obtain an "offline" signature scheme with the help of the Fiat-Shamir transformation.



Division of Life Sciences

首揭細胞「無合成分裂」

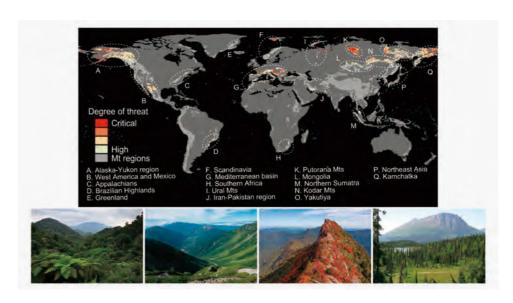
Multicolor Live-Cell Barcoding Technique Discovers "Asynthetic Fission"

細胞分裂的發生是所有生命的基礎,過去 180 年,科學家認知的細胞分裂方式有兩種:有 絲分裂跟減數分裂,透過製造新的細胞,讓生物體的發育、生長與繁殖成為可能。

細胞與個體生物學研究所陳振輝副研究員團隊在研究斑馬魚發育時,意外發現第三種獨特的細胞分裂方式,其分裂過程不需要進行遺傳物質(DNA)複製,因此命名為「無合成分裂」。此研究顛覆過去百年來的細胞分裂發現,有助於後續對其他生物體進行深入探究,進一步了解細胞生理調控機制。

Cell division is a fundamental process of life. For the past 180 years, scientists have recognized two forms of cell division: mitosis and meiosis. Through the production of new cells, the development, growth, and reproduction of organisms are made possible.

Besides mitosis in somatic cells and meiosis in germ cells, a research team led by Associate Research Fellow Chen-Hui Chen from the Institute of Cellular and Organismic Biology discovered a deviant form of cell division in live zebrafish larvae, named "Asynthetic Fission," which accounts for the drastic increase in cell number during development. This research overturns the century-old understanding of cell division and aids in further exploration of other organisms, advancing our understanding of cellular physiological regulatory mechanisms.



跨域研究發現全球 17 山區暖化嚴重

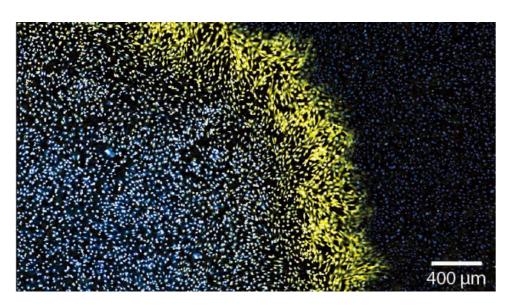
Discovery of Severe Warming in 17 Mountain Regions Worldwide

由於全球山區缺乏長期運作的氣象觀測站,使得山區氣候變化的量化成為一大挑戰。生物多樣性研究中心沈聖峰研究員領銜的國際研究團隊,創新結合熱力學原理與氣候資料庫,首創山區氣候速度的推估模式,更首度發現全球 17 個區域的山脈等溫線正以每年超過11.67 公尺的速度上升,對高海拔的獨特物種構成巨大威脅。

「全球山區氣候變化速度與物種適應」的研究透過生物、大氣與資料科學方法的跨域結合, 嘗試解決環境生態和人類社會永續發展的重大問題,是本院投入全球關鍵議題的重要研究 成果之一。

The lack of long-term meteorological observation stations in mountain regions worldwide has long made quantifying climate change in these areas a major challenge. A study led by Research Fellow Sheng-Feng Shen from the Biodiversity Research Center, has made a breakthrough on this issue. It combines thermodynamic principles with climate databases to map the vertical migration of isotherms with unprecedented precision. The research reveals that isotherms in 17 global mountain regions are rising at rates of more than 11.67 meters per year, posing an urgent threat to mountain species.

The study, "Climate Velocities and Species Tracking in Global Mountain Regions," combines biology, atmospheric science, and data science to provide critical insights into environmental pressures on mountain ecosystems. The innovative approach offers a new perspective on the impacts of climate change and contributes to our understanding of long-term environmental sustainability.



鐵死亡觸發波解密大規模細胞死亡之謎

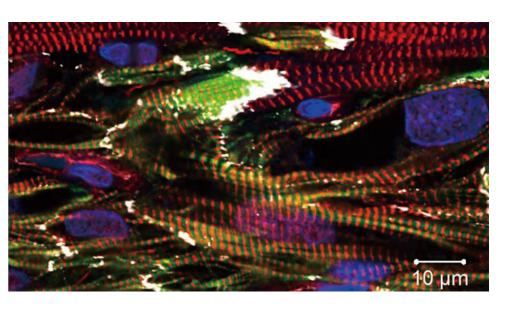
The Lab for Cell Dynamics Discovered Ferroptotic Trigger Waves as the Hidden Hand that Carves Life

自 19 世紀以來,科學家們發現在生命發育的過程中,細胞會迅速增生並分化出多細胞生物體上的各種組織與器官,但增生的同時為什麼會伴隨大規模的細胞死亡?這是一道百年未解之謎。分子生物研究所陳昇宏助研究員團隊,首度發現「活性氧化物」所造成的鐵死亡觸發波(ferroptosis trigger wave),是造成大規模細胞死亡之因,為胚胎發育提供了一種新的解釋。

研究團隊結合了生物及數理的專長,以創新系統生物學方法,結合數學建模,驗證鐵死亡 觸發波的細胞訊號傳導迴路,為器官生成過程提出重要研究解釋。

During embryonic development, cells proliferate rapidly and differentiate to form tissues and organs of multicellular organisms. Paradoxically, since the 19th century, scientists have discovered that these processes that foster the creation of life are often accompanied by large-scale cell death. The reason for this phenomenon remains a century-old mystery. Assistant Research Fellow Sheng-Hong Chen and his team from the Institute of Molecular Biology's Lab for Cell Dynamics discovered that large-scale cell death occurs through Reactive Oxygen Species (ROS)-mediated ferroptosis trigger waves.

The team developed mathematical biological models to utilize an innovative quantitative and systems biology approach to tackle a long-lasting challenging. They identified the cellular signaling system underlying ferroptotic trigger waves, shedding new insights into organogenesis processes.



人類心臟組織再生研究取得突破

Advancement in Human Heart Tissue Regeneration in Non-human Primates

心臟衰竭依然是全球最重要的致死原因,它的特點是成年人的心臟無法自我修復或彌補損失的心臟肌肉細胞。近年來利用幹細胞的細胞療法,已成為恢復失去的心臟肌肉細胞和重振心臟功能的可能途徑。

生物醫學科學研究所謝清河特聘研究員研究團隊,在小鼠和非人類靈長類動物模型中取得顯著突破,通過共同移植人類誘導性多潛能幹細胞衍生的內皮細胞和心肌細胞,成功修復並再生受損的心臟肌肉細胞,引領心臟再生領域新時代的可能性。

Heart failure remains a significant global cause of mortality, characterized by the adult human heart's inability to repair itself or compensate for the loss of cardiac muscle cells. Cell therapy, specifically employing stem cells, has emerged as a promising avenue for restoring lost cardiac muscle cells and reviving heart function.

Led by the Distinguished Research Fellow Patrick CH Hsieh from the Institute of Biomedical Sciences, a pioneering research team has achieved noteworthy breakthroughs in both murine and non-human primate models. The research successfully restored and regenerated damaged hearts through the co-transplantation of human-induced pluripotent stem cell (iPSC)-derived endothelial cells and cardiomyocytes.





以全球史視野梳理清代臺灣港街變遷

Analyzing the Coastal Lives of Taiwan's port cities in Qing Dynasty from a Global History Perspective

林玉茹 研究員 Research Fellow Yus Ju Lin 臺灣史研究所 Institute of Taiwan History

臺灣史研究所林玉茹研究員出版《向海立生:清代臺灣的港口、人群與社會》,從全球 史視野,梳理清代臺灣港街在政治、經濟以及社會面向的變遷,呈現前近代港口市街發 展的共相與殊相。

Research Fellow Yu-Ju Lin from the Institute of Taiwan History has published *Coastal Lives: Port Cities, Communities, and Society in Qing-Era Taiwan*. This book adopts a global history perspective to sort out the political, economic, and social changes that occurred in Taiwan's port cities in the Qing Dynasty, and how they manifested the common features of the development of pre-modern port cities as well as aspects specific to Taiwan.



女性主義觀點分析臺灣醫護勞動待遇

Enhancement of Feminist Perspective: Analyzing Labor Conditions in Taiwanese Healthcare

張晉芬 研究員 Research Fellow Chin-Fen Chang 社會學研究所

Institute of Sociology

社會學研究所張晉芬研究員出版《勞動待遇與代價:從性別觀點分析臺灣醫護工作》,探討臺灣醫護工作的勞動待遇,並採用女性主義的觀點,強調生產性勞動與再生產勞動之間的關係。

Research Fellow Chin-Fen Chang from the Institute of Sociology has published Salary and Sacrifices: Analyzing Labor Outcomes of Medical Personnel from a Gender Perspective. This book explores the work conditions of healthcare personnel in Taiwan from a feminist perspective, highlighting the mutual impacts of production and reproduction labor in the workplace.



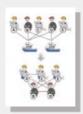
民生偕蒼生:開放經濟體下之新冠病毒疾病防控策略

Between Lives and Economy: Optimal COVID-19 Containment Policy in Open Economies

許文泰 研究員 Research Fellow Wen-Tai Hsu 經濟研究所 Institute of Economics

經濟研究所許文泰研究員團隊運用量化模型結合流行病學和國際貿易的一般均衡模型,分析開放經濟下防疫政策應對 Covid-19 的政策效果,指出疫情對長期福利與實質收入的損失嚴重、國際貿易可緩解損失並挽救生命。

A team led by Research Fellow Wen-Tai Hsu from the Institute of Economics conducted quantitative analyses using a model that incorporates an epidemiological compartmental model with a general equilibrium trade model. The research highlights that the long-run welfare losses due to just two years of pandemic shocks are substantial, and trade not only helps buffer these losses but also saves lives.



匿蹤還是混入?一個關於臺灣海上犯罪的網絡分析

To blend in or hide out?

A network analysis on maritime criminal co-voyages in Taiwan

江彦生 研究員 Research Fellow Yen-Sheng Chiang 社會學研究所 Institute of Sociology

社會學研究所江彥生研究員團隊根據 2016 至 2018 年的海巡署海上活動數據,繪製出一個由 53,009 個節點和 2,592,288 個加權鏈路所組成的海上同航網絡,研究發現海上犯罪者與同夥,一同出海共航的密度比起一般漁民彼此之間來得更高,顯示他們傾向以匿蹤而不是魚目混珠(混入正常漁民)的方式來從事犯罪活動。

In collaboration with law enforcement, a research team led by Research Fellow Yen-Sheng Chiang from the Institute of Sociology analyzed the co-voyage network of criminals and non-criminals, using maritime data from Taiwan (2016-2018), covering 53,009 nodes and 2,592,288 links. Through bootstrap resampling, the research found that criminals are more likely to co-voyage with each other and are more clustered than non-criminals. These findings suggest that criminals tend to segregate from rather than blend in with the general population.





新視角揭露宋代印刷與醫書書寫關係

New Perspectives on the Relationship Between Song Dynasty Printing and Medical Texts

陳韻如 助研究員

Assistant Research Fellow Buth Yun-Ju Chen

歷史語言研究所

Institute of History and Philology

歷史語言研究所陳韻如助研究員出版 Good Formulas: Empirical Evidence in Mid-Imperial Chinese Medical Texts (書名暫譯:《良方:中國中期醫書中的實證證據》),討 論中國宋代印刷術與醫書書寫的關係,並從新的視角揭露宋代印刷文化對醫學的影響,幫 助學界更完整地掌握中國印刷文化史,為中西印刷文化的比較提供具體案例。

Assistant Research Fellow Ruth Yun-Ju Chen from the Institute of History and Philology has published Good Formulas: Empirical Evidence in Mid-Imperial Chinese Medical Texts. This is the first book-length study of the use of empirical evidence in Chinese medicine between the ninth and thirteenth centuries. The rise of this new approach to substantiating knowledge, which had appeared only sporadically in earlier medical literature, provides a window into transformations in the construction of textual authority in mid-imperial China.



習近平十年執政的全方位檢視

A Comprehensive Examination of the Xi Jinping Decade

吳玉山 特聘研究員

政治學研究所 Institute of Political Science

Distinguished Research Fellow

政治學研究所吳玉山特聘研究員主編《一個人或一個時代:習近平執政十週年的檢視》, 匯集國內重要政治學者,诱過「比較共產主義理論」,探討習近平現象的成因,剖析執政十 年的變遷,並深入研究習近平現象對中國內外的重大影響。

Distinguished Research Fellow Yu-Shan Wu from the Institute of Political Science has edited A Person or an Ara: Examination of the Xi Jinping Decade. This book grasps the "Xi Phenomenon" in both theoretical and empirical terms. Empirically the "Xi Phenomenon" is analyzed through an investigation into its origins, concentration of political power, domestic expansion of the party state, and China's rising international influence.



自中國參謀本部研究軍事發展史

Concentration on the History of Military Development Through the Chinese General Staff

蘇聖雄 副研究員

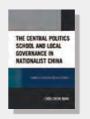
Associate Research Fellow Shena-Hsiuna Su

近代史研究所

Institute of

近代史研究所蘇聖雄副研究員出版《戰爭、制度與思想:近代中國參謀本部的興起》,不僅研 究中國參謀本部的制度與興革,更是關於中國從傳統到現代的整體軍事發展史,闡述了西方 軍事思想如何跨越國界,流傳和移植至中國,從而呈現一個全球性的歷史視野。

Associate Research Fellow Sheng-Hsiung Su from the Institute of Modern History has published War, Institutions and Thought: The Rise of the General Staff in Modern China. Through the interaction of institutional and thoughtful aspects, this book depicts a history of the organization and system of the General Staff and a history of the overall military development of China from the traditional to the modern. At the same time, the book also illustrates how Western military thinking was transmitted and transplanted to China across national boundaries and adapted to the local context, thus presenting a global historical perspective.



還原中央政治學校歷史重要性

Recovering the Historical Significance of the Central Politics School

汪正晟 副研究員

Associate Research Fellow Chen-Cheng Wang

近代史研究所 Institute of Modern History

近代史研究所汪正晟副研究員出版 The Central Politics School and Local Governance in Nationalist China: Toward a Statecraft beyond Science (書名中譯:《中央政治學校與 國府地方治理:邁向超越科學的經世之術》),考察抗戰前後中央政治學校畢業之地方官員 的學習與治理經驗,探討抗戰時期中國地方治理仿效西方行政科學而失敗,結合本土資源的 務實治理之術卻能成功的歷史經驗。

Associate Research Fellow Chen-Cheng Wang from the Institute of Modern History has published The Central Politics School and Local Governance in Nationalist China: Toward a Statecraft beyond Science. This book follows the discourses and activities of a special group of local officials in China's Nationalist government (1928-1949). It examines why some of the most talented Central Politics School (CPS) officials resorted to non-modern humanistic political techniques and achieved a Chinese statecraft more efficient and sustainable than science.

成就全球頂尖研究





儒家自由主義新闡釋

A New Interpretation of Confucian Liberalism

曾國祥 研究員 Research Fellow Roy Tseng 人文社會科學研究中心

Research Center for Humanities and Social Sciences

人文社會科學研究中心曾國祥研究員出版 Confucian Liberalism: Mou Zongsan and Hegelian Liberalism (書名中譯:《儒家自由主義:牟宗三與黑格爾自由主義》),通過黑格爾哲學視域,重新詮釋新儒家的思想資產,於跨文化的框架中創建自由主義的一種新型態,並藉以重塑儒家道德特質與政治理想的現代意義。

Research Fellow Roy Tseng from the Research Center for Humanities and Social Sciences has published *Confucian Liberalism: Mou Zongsan and Hegelian Liberalism.* By reinterpreting the intellectual legacy of the New Confucianism through the perspective of Hegelian philosophy, this book creates a new genre of liberalism within a cross-cultural framework, reflecting current trends in political theory.



由三個原創性觀念展開的公民哲學研究

A Civic Philosophy with Three Methodologically Original Ideas

鄧育仁 特聘研究員
Distinguished Research Fellow
Norman Y. Teng

歐美研究所 Institute of

European and American Studies

歐美研究所鄧育仁特聘研究員出版《公民哲學》,這本書由三個原創性觀念展開公民哲學的研究:以重新框設作為一種哲學方法、以心智多樣性作為哲學探究的立足點,以及以公 民視角定位當代政治哲學的研究方向。

Distinguished Research Fellow Norman Y. Teng from the Institute of European and American Studies has published *Civic Philosophy*. This book comprises three core ideas: the idea of reframing as a method of philosophizing, the idea of cognitive diversity as a foothold for philosophical inquiry, and the idea that civic perspectives shape today's emerging political philosophy.



智慧之專技理論研究

Research on the Skill Theory of Wisdom

蔡政宏 研究員 Research Fellow Cheng-Hung Tsai 歐美研究所 Institute of

European and American Studies

歐美研究所蔡政宏研究員出版 Wisdom: A Skill Theory (書名中譯:《智慧:技藝理論》),他在書中提出一套創新的智慧理論,並展示智慧之技藝模型在解釋智慧主要面向上能有多大進展。全書分章深入闡述了智慧的本質、結構、內涵、習得,以及智慧所涉及的規範。

Research Fellow Cheng-Hung Tsai from the Institute of European and American Studies has published *Wisdom: A Skill Theory*. This book presents a novel theory of wisdom and demonstrates how far a skill model of wisdom can go with respect to explaining various aspects of wisdom. It elaborates on the nature, structure, content, and acquisition of wisdom, as well as the norms involved in wisdom.



挑戰關鍵與新興議題

Key Challenges and Emerging Issues

本院長期推動「關鍵突破研究計畫」,從基因與細胞療法、資料科學、量子科技等主題尋求根本性突破,達成「以研究帶動社會進步」之目標。在人文及社會科學方面,延續在史學、文化及語言、東西方哲學思想、社會與經濟,以及法律與政治制度等領域的深耕與累積,致力於新興議題上應用及跨領域的合作。2024年成立關鍵議題研究中心,針對如量子科技、淨零碳排、海洋能等議題展開研究,以任務導向模式進行研發,提出解方。

Academia Sinica has long promoted its Grand Challenge Program: Long-term initiatives in gene and cell therapies, data science, and quantum technology aimed at foundational breakthroughs to drive societal progress. In the humanities and social sciences, Academia Sinica will continue its scholarly endeavors in history, culture and language, Eastern and Western philosophy, society and the economy, the law and political systems, etc., while maintaining its commitment to applying basic science to emerging issues and interdisciplinary collaboration. The Research Center for Critical Issues was established in 2024 and focuses on critical areas such as quantum technology, carbon neutrality, and ocean energy. Research is conducted using a mission-oriented approach to develop practical solutions.

政策建議書及經濟預測

Policy Recommendations and Economic Forecasting

本院「經濟研究所總體經濟預測小組」每半年對臺灣總體經濟的預測,供政府學界及業界參考。為利政府決策及研擬執行方案,本院自 2008 年起,就科技發展及社會重要議題,遴選專家學者組成研議小組,撰寫政策建議書,就學術角度提供具前瞻性、挑戰性思維之建言,以利政府決策及研擬執行方案。如 2023 年提出「農業政策建議書 2.0」、2022 年提出「臺灣淨零科技研發政策建議書」及「臺灣貨幣金融改革政策建議書」等。

The Taiwan Economic Forecast Team of the Institute of Economics conducts a biannual macroeconomic forecast for Taiwan for academic, government, and industry groups. Since 2008, the academy has been selecting expert scholars to form study groups to draft policy recommendation reports on technological developments and significant social issues, such as the Agricultural Policy Recommendations 2.0 in 2023, the Strategic Recommendations for Science and Technology Actions Towards Net Zero Emission in Taiwan and the Policy Recommendations for Monetary and Financial Reforms in Taiwan in 2022.

ACADEMIA SINICA

淨零碳排

2050 Net-Zero Emissions

面對「2050 淨零排放」的國際趨勢,本院於 2022 年發布「臺灣淨零科技研發政策建議書」,提出「淨零五支箭」等包括去碳燃氫、地熱、海洋能、高效太陽能光電系統,以及生質碳匯之研發,加速臺灣實踐目標。本院去碳燃氫技術,經積極與台灣電力公司合作,成功將去碳燃氫機組與小型天然氣發電機組(65kW)串接,將產製之 10% 氫氣合成氣直接輸入發電機組,進行混氫運轉發電,證實此項技術能接軌既有發電系統,成功垂直整合研究與應用。此外,海洋能被視為零碳能源的關鍵選項,本院正研發製造 100kW 黑潮渦輪發電機,並預計展開水下及實海測試,幫助臺灣儘速提升零碳電力的占比。

In response to the global trend towards "2050 Net-Zero Emissions," Academia Sinica released the *Strategic Recommendations for Science and Technology Actions Towards Net-Zero Emission in Taiwan* in 2022. The report focuses on the research and development of Methane Pyrolysis to Power (MPTP), geothermal energy, ocean energy, high-efficiency photovoltaic systems, and biomass carbon sinks to accelerate Taiwan's implementation of its net-zero targets. Academia Sinica has collaborated with Taiwan Power Company to integrate MPTP technology with a 65 kW microturbine, successfully generating power using 10% hydrogen syngas. This demonstrates that the technology can be seamlessly integrated with existing power generation systems, achieving successful vertical integration of research and application. Additionally, ocean energy is considered a critical zero-carbon energy option. Academia Sinica is developing a 100 kW Kuroshio generator, with plans to initiate field testing soon to help increase Taiwan's zero-carbon electricity ratio.

科普推廣

Promoting Popular Science

全臺最具規模的「院區開放參觀活動」已連續舉辦 27 年,藉由每年上百場的活動,如實驗室導覽、海報成果展、互動性實驗及研究人員科普演講等,讓所有參觀民眾一次滿足對科學的好奇心,2023 年首辦適合國小學童參與的「兒童科普日」,2024 年更將前進南部院區,邀請親子同樂。

本院藉 YouTube、Facebook 及 Instagram 等社群網路平臺,持續與社會大眾分享科普新知。自製「研之有物」科普平臺,以深入淺出的方式報導本院研究成果,以及研究進程的故事。

For 27 years straight, Taiwan's largest "Open House" has been held at Academia Sinica featuring hundreds of events organized on an annual basis, including lab tours, poster exhibitions, interactive experiments, and scientific lectures. In 2023, the first "Science Day for Kids" was launched, and in 2024, the event will expand to the Academia Sinica South Campus.

"Research For You" is a popular science platform appealing to a wide audience that introduces research results in mathematics, the natural sciences, and the humanities and social sciences, as well as shedding light on the hardships researchers encounter while doing scholarship. Breakthroughs in popular science are shared with the public through social media platforms, including Facebook, Instagram, and YouTube.





國內外攬才

Talent Recruitment

本院是兼具數理、生命和人文與社會科學三領域的國際級全方位研究機構。本院鼓勵跨領域合作,與國際學術社群亦有緊密連結,學術交流以英語為主。目前有近800位外籍同仁,來自美國、日本、韓國、印度、馬來西亞等40多國。

As Taiwan's leading academic institution for basic research in its three Divisions (Mathematics and Physical Sciences, Life Sciences, Humanities and Social Sciences), Academia Sinica is a uniquely multifaceted scholarly institution. We encourage interdisciplinary collaboration and have close relations with the international scholarly community, with most academic exchanges conducted in English. AS has hosted nearly 800 International Members from 40 countries to date, including from the United States, Japan, South Korea, India, and Malaysia.

778

外籍同仁 International Members

64

研究人員及研究技術人員 Research Fellows and Research Specialists

188

研究助理 Research Assistants 40

國家 Countries

221 博士後研究人員

Postdoctoral Researchers

305 獎助學生 Scholarship Recipients

統計至 2024 年 8 月底 (As of August 2024)





國際研究生學程 (TIGP)

Taiwan International Graduate Program (TIGP)

為培養跨領域優秀研究人才,強化學術交流,本院於 2002 年起與國內研究型大學合作開設跨領域國際研究生學程(Taiwan International Graduate Program, TIGP),就數理科學、應用科學、生命科學、醫學、農業科學,以及人文社會科學中特定跨學門之尖端領域,規劃各項博士班學程,學位由合作大學授予。國際研究生學程目前約有來自 44 個國家 627 名學生就讀,迄今累計培育 829 名畢業生。

Since 2002, Academia Sinica has collaborated with leading universities to develop a variety of curricula for Ph.D. students in the Taiwan International Graduate Program (TIGP). In order to cultivate outstanding talent for interdisciplinary research and strengthen academic connections, the curricula cover advanced studies in fields such as mathematical science, applied science, life science, medical science, and agricultural science, as well as the humanities and social sciences, with degrees awarded by participating universities. At present, 627 students from 44 countries have enrolled in the TIGP, and 829 students have graduated to date.



國內學程

Domestic Programs

● 與國內大專院校合辦博士班學位學程

Collaborative Ph.D. Degree Programs with Domestic Universities

為培育國家高等研究人才,本院自 2008 年起與國內 12 所大學合辦 9 項跨領域博士班學程,根據雙方的學術優勢與資源,以具有前瞻性、競爭力、符合當前國家科技、產業政策與社會發展的跨領域研究為主題,規劃學程發展方向,進行優勢合作,學位則由合作大學授予。學程目前約有在學生 120 多位,並已培育 169 位畢業生,藉由每年度舉辦學程研討會,促進本院與校方雙邊師生交流。



Since 2008, Academia Sinica has launched 9 interdisciplinary Ph.D. programs in collaboration with 12 domestic universities to cultivate talent for advanced research, with degrees awarded by participating universities. Such collaboration between AS and domestic universities is based on their research strengths and resources, and aims to develop innovative and competitive Ph.D. programs that satisfy current demands for national technology, industrial policies, and social development. The program currently has over 120 enrolled students and 169 graduates. Through annual program seminars, Academia Sinica fosters bilateral exchanges with partner universities.

● 合作舉辦人文講座

Collaborative Humanities Core Courses

為培育新世代跨領域科學人才,建立基礎人文教育典範,本院與陽明交通大學、臺北醫學大學及國防醫學院合作,開設「中央研究院人文講座」課程。領域涵括社會與經濟、歷史與文明、科技與社會、藝術與文化、哲學與心靈、倫理與道德思考等六大類通識課程。十年來已開辦 267 門課,修課學生達近6,000 人次。



In order to cultivate new scientific talent for interdisciplinary research and set an example for education in basic humanities, Academia Sinica has collaborated with National Yang Ming Chiao Tung University, Taipei Medical University, and National Defense Medical Center to launch the Academia Sinica Humanities Core Courses. The courses offered by this program cover general education in 6 categories, including society and the economy, history and civilization, technology and society, art and culture, philosophy and the mind, and morality and ethical thinking. A total of 6,000 students have enrolled to date, with 267 courses held.

CULTIVATE TOP TALENT 24 - 25



強化國際合作交流

Enhancing International Collaboration and Exchange

為建構全方位的學術網絡,本院迄今與逾 65 個國家、超過 650 所學術研究機構,簽署近 850 個合作協議。包含與美國能源部國家實驗室、美國國家衛生研究院及其轄下國家癌症研究、美國國家醫學院、加拿大渥太華大學、日本理化學研究所、日本國立天文台、法國國家科學院、法國高等社會科學院、捷克科學院、波蘭科學院、斯洛伐克科學院、印度理工學院、泰國皇家瑪希隆大學等。未來將繼續提升學術交流的深度與廣度,藉此引領我國學術發展與方向,使臺灣能在優勢領域躋身國際領導地位。

A total of nearly 850 cooperative agreements have been signed with more than 650 research institutions in over 65 countries (or regions) to establish comprehensive academic connections worldwide, including partners such as the U.S. Department of Energy National Laboratories, the National Institutes of Health (NIH) and its National Cancer Institute, the National Academy of Medicine, the University of Ottawa in Canada, RIKEN in Japan, the National Astronomical Observatory of Japan, the French National Centre for Scientific Research (CNRS), the École des Hautes Études en Sciences Sociales (EHESS) in France, the Czech Academy of Sciences, the Polish Academy of Sciences, the Slovak Academy of Sciences, the Indian Institutes of Technology, and Mahidol University in Thailand. In the future, Academia Sinica will continue to broaden international links and strengthen scholarly connections to lead efforts in the development of domestic research to enable Taiwan to exert greater influence in its principal fields.



ACADEMIA SINICA

參與大型國際合作研究計畫

Participation in Large-Scale International Collaboration Research Projects

本院除在全球設置數十個學術研究據點,並與許多國家科研單位有跨國研究合作計畫。其中與歐洲、北美、東亞團隊聯合興建阿塔卡瑪大型毫米及次毫米波陣列(簡稱ALMA),憑其高角解析力及高靈敏度已取得突破性的研究成果;與國際研究團隊攜手合作「癌症登月計畫」(National Cancer Moonshot),共同致力於癌症精準診斷及治療;參加「未來地球 Future Earth 之亞洲地區計畫」永續科學活動;加入美國國家衛生研究院資助的「疫苗猶豫研究計畫」(Vaccine Hesitancy),透過 CNEF 資料整合平台(Cross-National Equivalent File)平台開放學界共享;與捷克科學院合作「新生代魚類化石國合計畫」;獲歐盟執委會(European Commission)知名國際研究計畫 Horizon Europe 補助,共同參與由瑞典哥特堡大學統籌之跨國研究團隊進行人權相關研究(HR Just)。

Academia Sinica has established numerous research sites globally and has engaged in international collaborative research projects with research institutions in various countries. Notably, Academia Sinica has partnered with teams from Europe, North America, and East Asia to construct the Atacama Large Millimeter/submillimeter Array (ALMA), achieving groundbreaking research results through its high angular resolution and sensitivity. Academia Sinica also collaborates on the National Cancer Moonshot initiative, focusing on precision cancer diagnosis and treatment; participates in the Future Earth Asia regional sustainability science activities; joins the NIH-funded Vaccine Hesitancy research project, sharing data via the Cross-National Equivalent File (CNEF) platform; partners with the Czech Academy of Sciences on the Cenozoic Fossil Fish International Collaboration Project; and participates in human rights-related research (HR Just) within the Horizon Europe program, coordinated by the University of Gothenburg in Sweden, with funding from the European Commission.



深化與全球學術社群互動

Deepening Engagements with the International Academic Community

為連結國際學術社群,本院透過參與「國際科學理事會」(International Science Council, ISC)等國際指標性學術組織,促進多方學術交流,共同為全世界科學議題發聲。更全力推動各項國際學術交流平台,積極提名國內學者參選「世界科學院」(TWAS)院士,代表臺灣關懷發展中國家之學術發展,我國迄今已產生 63 位 TWAS 院士及 34 位 TWAS 獎項得主,除彰顯學者個人的成就,更代表臺灣對國際科學社群的投入。

To engage with the academic community, Academia Sinica actively participates in leading academic organizations such as the International Science Council (ISC), fostering diverse academic exchanges and collectively addressing global scientific issues. Furthermore, Academia Sinica promotes various international academic exchange platforms and actively nominates domestic scholars for election as fellows of The World Academy of Sciences (TWAS), representing Taiwan's commitment to the academic development of developing countries. To date, Taiwan has produced 63 TWAS fellows and 34 TWAS award recipients, highlighting individual scholars' achievements and demonstrating Taiwan's dedication to the international scientific community.





舉辦國際學術講座

Hosting International Academic Lectures

本院設有「中央研究院講座」與「特別講座」,邀請獲諾貝爾獎等重量級國際學者來訪及演講。近年曾邀請諾貝爾化學獎得主馬丁·查爾菲博士(Martin Chalfie)及文卡·拉馬克里希南博士(Venki Ramakrishnan)、波蘭科學院杜辛斯基院長(Jerzy Duszyński)、美國加州大學聖塔芭芭拉分校約翰·馬汀尼斯教授(John Martinis)及教廷「宗座科學院」主席馮布朗教授(Joachim von Braun)等來訪演講。

Academia Sinica offers the "Academia Sinica Lecture" and "Special Lecture" series, inviting internationally renowned scholars, including Nobel laureates, to visit and present lectures. Recent invitees include Nobel Chemistry Prize laureate Martin Chalfie and Venki Ramakrishnan, Jerzy Duszyński, President of the Polish Academy of Sciences, John Martinis from the University of California, Santa Barbara, and Joachim von Braun, President of the Pontifical Academy of Sciences.

INTERNATIONAL LINKS 28 - 29



研究單位

Research Units

● 數理科學組

Division of Mathematics and Physical Sciences

數學研究所 Institute of Mathematics

物理研究所 Institute of Physics

化學研究所 Institute of Chemistry

地球科學研究所 Institute of Earth Sciences

資訊科學研究所 Institute of Information Science

統計科學研究所 Institute of Statistical Science

原子與分子科學研究所 Institute of Atomic and Molecular Sciences

天文及天文物理研究所 Institute of Astronomy and Astrophysics

應用科學研究中心 Research Center for Applied Sciences

環境變遷研究中心 Research Center for Environmental Changes

資訊科技創新研究中心 Research Center for Information Technology Innovation

● 生命科學組

Division of Life Sciences

植物暨微生物學研究所 Institute of Plant and Microbial Biology

細胞與個體生物學研究所 Institute of Cellular and Organismic Biology

生物化學研究所 Institute of Biological Chemistry

分子生物研究所 Institute of Molecular Biology

生物醫學科學研究所 Institute of Biomedical Sciences

農業生物科技研究中心 Agricultural Biotechnology Research Center

基因體研究中心 Genomics Research Center

生物多樣性研究中心 Biodiversity Research Center

● 人文及社會科學組

Division of Humanities and Social Sciences

歷史語言研究所 Institute of History and Philology

民族學研究所 Institute of Ethnology

近代史研究所 Institute of Modern History

經濟研究所 Institute of Economics

歐美研究所

Institute of European and American Studies

中國文哲研究所 Institute of Chinese Literature and Philosophy

臺灣史研究所 Institute of Taiwan History

社會學研究所 Institute of Sociology 語言學研究所 Institute of Linguistics

政治學研究所 Institute of Political Science

法律學研究所 Institutum lurisprudentiae

人文社會科學研究中心 Research Center for Humanities and Social Sciences

● 跨學組研究中心

Cross-Divisional Research Center

生醫轉譯研究中心 Biomedical Translation Research Center

關鍵議題研究中心 Research Center for Critical Issues

● 跨領域整合計畫

Interdisciplinary Programs

永續科學中心 Center for Sustainability Science

數位文化中心 Academia Sinica Center for Digital Cultures

● 國家生技研究園區

National Biotechnology Research Park

● 南部院區

Academia Sinica South Campus

ACADEMIA SINICA

展覽館、圖書館及公共設施

Museums, Libraries, and Public Facilities

● 展覽館

Museums

歷史文物陳列館 Museum of the Institute of History and Philology

生物多樣性研究博物館 -動物標本館 Biodiversity Research Museum - Zoological Collections

生物多樣性研究博物館 -植物標本館 Biodiversity Research Museum - Herbarium

民族學研究所博物館 Museum of the Institute of Ethnology 嶺南美術館 Lingnan Fine Arts Museum

胡適紀念館 Hu Shih Memorial Hall

生態時代館 Eco Pavilion

● 圖書館

Libraries

數理科學組

Division of Mathematical and Physical Sciences

數學所圖書館 Institute of Mathematics Library

地球所圖書館 Institute of Earth Sciences Library

原分所圖書館 Institute of Atomic and Molecular Science Library

物理所圖書館 Institute of Physics Library

天文所圖書館 Institute of Astronomy and Astrophysics Library

化學所圖書館 Institute of Chemistry Library

統計所圖書館 Institute of Statistical Science Library

資訊所圖書室 Institute of Information Science Library

生命科學組 Division of Life Sciences

生命科學圖書館 Life Science Library

人文及社會科學組

Division of Humanities and Social Sciences

史語所傅斯年圖書館 Institute of History and Philology Library

經濟所画青貼 Institute of Economics Library

文哲所圖書館 Institute of Chinese Literature and Philosophy Library

民族所圖書館 Institute of Ethnology Library

歐美所圖書館 Institute of European and American Studies Library

人文社會科學聯合圖書館 Joint Humanities and Social Sciences Library

人社中心圖書館 Humanities and Social Sciences Research Center Library

近史所郭廷以圖書館 Kuo Ting-yee Library, Institute of Modern History

● 公共設施

Public Facilities

學術活動中心 Activity Center

綜合體育館 Gymnasium

學人宿舍 Scholars' Guest House 附設幼兒園

Academia Sinica Kindergarten

托嬰中心 Daycare Center

公共藝術 Public Art





中央研究院 ACADEMIA SINICA