2022 年度澳門科學技術獎

通過形式審查名單

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
1	001/2022/AN	隨機矩陣、可積系統和無線通信	陳玡仰	澳門大學
2	002/2022/AN	智慧及可持續發展的國家與基建	杜偉明	澳門理工學院
3	003/2022/AN	新冠病毒突刺蛋白受體結合部位的雙突變所致新冠病毒高度傳染性的機理	王山鳴，Siddharth Sinha，Benjamin Tam	澳門大學
4	004/2022/AN	圖像識別技術的研究	周怡聰	澳門大學
5	005/2022/AN	利用微生物清潔環境的新觀點從家庭和工業廢水中回收資源的先進處理	Hojae SHIM	澳門大學
6	006/2022/AN	新穎多模天線的研究及其在低成本物聯網通信中的應用	祝雷，劉能武，段俊冰	澳門大學
7	007/2022/AN	自噬調節劑作為人類重要疾病的潛在治療策略：癌症、神經退行性及心血管疾病	黃錦偉，羅婉君，劉良，莫永暉，Paolo Saul Coghi	澳門科技大學
8	008/2022/AN	自適應傅立葉分解系列算法設計、實現與應用	張立明，錢濤，春雨，王小銀	澳門大學，澳門科技大學

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
9	009/2022/AN	“超分子細胞”藥物遞送體系的構建及用於炎症和腫瘤的靶向治療	王瑞兵，李銘源，高成	澳門大學
10	010/2022/AN	面向光芯片核心組件的前沿探索	李建慶，舒怡青，胡海國，張瑩方	澳門科技大學
11	011/2022/AN	微磁學模擬的數值方法研究	楊蕾，崔子璇，何佳芸	澳門科技大學
12	012/2022/AN	基於過渡金屬配合物的新型藥物開發	梁重恒，林理根，黃錦偉，李國棟	澳門大學，澳門科技大學
13	013/2022/AN	腫瘤乏氧微環境的檢測及其治療增敏的研究	陳美婉，何承偉，郭兆培	澳門大學
14	014/2022/AN	分數階微分方程的高精度算法	黃錫榮，金小慶	澳門大學
15	015/2022/AN	光功能金屬多酚配位材料及生物醫學應用	代雲路	澳門大學
16	016/2022/AN	抗腫瘤耐藥的基礎研究與轉化應用	梁麗嫻，姚小軍，范星星，吳其標，曹亞兵	中藥質量研究國家重點實驗室(澳門科技大學)，澳門鏡湖醫院
17	017/2022/AN	城市綜合能源系統運行優化與供能質量治理理論及方法	宋永華，黃民聰,，張洪財，戴寧怡，劉景榮	澳門大學
18	018/2022/AN	促進組織修復的中藥源多糖材料	王春明，牛一鳴,，王珍珍	澳門大學

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
19	019/2022/AN	重要鋅指蛋白 PATZ1 調節幹細胞多能性及抑制腫瘤生長的機制解析	吳強	中藥質量研究國家重點實驗室(澳門科技大學)
20	020/2022/AN	基於不同製造方法生產之空心截面鋼結構柱的高階分析與設計研究	郭偉明	澳門大學
21	021/2022/AN	城市代謝過程中能源和廢物問題的系統性解決方案	宋慶彬，梁揚揚	澳門科技大學
22	022/2022/AN	金屬鹵化物鈣鈦礦優異光電子特性研究	邢貴川，湯子康，梁超，郭佳	澳門大學
23	023/2022/AN	多媒體信息分析與安全	潘治文	澳門大學
24	024/2022/AN	月球及火星表面環境研究中的科學發現	張小平, 徐懿	澳門科技大學
25	025/2022/AN	精準腫瘤學: 從乳腺癌相關基因 1 (BRCA1) 的研究到臨床應用	鄧初夏，徐曉玲，陳強，苗凱，孫恒	澳門大學
26	026/2022/AN	治療炎症和免疫調節的新藥發現、臨床研究和產業化	朱依諄	澳門科技大學，復旦大學
27	027/2022/AN	能源存儲與轉化中關鍵科學問題的解決與應用	許冠南，邵懷宇，洪果	澳門大學
28	028/2022/AN	難溶性藥物口服新型乳劑的研究	易濤	澳門理工學院

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
29	029/2022/AN	多源模糊數據集資訊融合與知識獲取的粒計算方法研究	曾祥財，郭艷婷，胡猛，張慶朔	澳門科技大學
30	030/2022/AN	TNFR2 為治療腫瘤和自身免疫性疾病的新靶點	陳新	澳門大學
31	031/2022/AN	粵港澳大灣區與葡語系國家海域生態系統生物多樣性及藥用價值研究	李銘源，范廣益	澳門大學
32	032/2022/AN	高頻隔離雙橋式直流-直流變換器的拓撲與控制問題	李曉東	澳門科技大學
33	033/2022/AN	STEP 持續學習的理論、方法及其應用	張渡，梁延研，蔡占川，戴弘寧	澳門科技大學
34	034/2022/AN	低維納米材料中的量子原子過程的第一性原理研究	蔡永青	澳門大學
35	035/2022/AN	基於代謝組學和神經影像學創新技術闡述 Omega-3 不飽和脂肪酸對肝、腦疾病的保護作用	蘇煥興，萬建波	澳門大學，中藥質量研究國家重點實驗室（澳門大學）
36	036/2022/AN	行星大氣動力過程研究及其應用於中國首次火星探測計劃天問一號	周劍超，蔡濤，肖靜	澳門科技大學月球與行星國家重點實驗室

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
37	037/2022/AN	基於人工智能和多組學的新型冠狀病毒感染的機制和診治的關鍵技術研究	張康，霍文遜，李婷	澳門科技大學
38	038/2022/AN	基於多維技術平臺和跨物種模型的抗神經退行性疾病中藥單體發現	路嘉宏，蘇煥興，李銘源	澳門大學
39	039/2022/AN	青蒿素及其衍生物的神經保護作用及其在相關疾病中的應用	鄭文華	澳門大學
40	040/2022/AN	大規模天綫通信系統分析理論與優化方法	馬少丹，施政，張環，伍先達，鞏世琪	澳門大學
41	041/2022/AN	清潔能源和低碳減排的政策傳導機制及決策建模	陳省宏，盛妮,，蕭仔伶，魏欣暘	澳門科技大學
42	042/2022/AN	面向社交網絡的多媒體安全和取證關鍵技術研發	周建濤，李元滿，田晉宇，吳海威	澳門大學，深圳大學
43	043/2022/AN	基於精准醫學理念的新冠預警預測及診斷技術研究及應用轉化	楊子峰，鍾南山，韓子天	澳門科技大學，廣州呼吸健康研究院
44	044/2022/AN	粵港澳大灣區城市可持續競爭力研究	劉成昆，林永佳，馬如飛	澳門科技大學
1	001/2022/AI	高維資產組合優化和指數跟蹤的正則化技術	舒连杰	澳門大學

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
2	002/2022/AI	便攜式核酸檢測數字微流控系統	麥沛然，貫艷偉，羅文基，馬許願	澳門大學
3	003/2022/AI	智能配電網中的先進電力電子電路及其控制技術	林智聲，麥沛然，馬許願	澳門大學
4	004/2022/AI	基於代謝組學的腎小球濾過率預測方程研究	彭洪泉，歐陽梓華，蔡宗仰	鏡湖醫院
5	005/2022/AI	實現碳中和 zeta 級數據交換能力的極高效電子芯片	陳知行，陳勇，張明磊，殷俊，麥沛然	澳門大學模擬與混合信號超大規模集成電路國家重點實驗室
6	006/2022/AI	大體積單晶體創新生長方法及關鍵設備	李海峰，朱英浩，夏俊超，吳思，周鵬飛	澳門大學
7	007/2022/AI	適用於電路量子電動力學的多帶寬振盪器	殷灝，张艳，譚錦榮，趙智豪，滕程	澳門大學
8	008/2022/AI	結構性稀疏正則化技術在生物多組學大數據上的應用	梁勇	澳門科技大學
9	009/2022/AI	納米泡沫混凝土	孫國星，梁瑞	澳門大學
10	010/2022/AI	一種人子宮內膜癌細胞系及其建立方法	孟麗榮，郎斌	澳門理工學院

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11	011/2022/AI	基於語言學驅動神經機器翻譯模型與中葡機器翻譯系統應用	黃輝，劉學博，周沁	澳門大學
12	012/2022/AI	圖形圖像智能計算與處理中的關鍵技術及應用	蔡占川，蘭霆，葉奔	澳門科技大學
13	013/2022/AI	CANARIN：環境監測系統	謝丹嬋，鄧樹傑	澳門理工學院
14	014/2022/AI	高通量生物微操作機器人系統研發與應用	徐青松	澳門大學
15	015/2022/AI	電能和數據傳輸的最後一釐米	路延，林智聲，黃沫，冼世榮，馬許願	澳門大學
1	001/2022/AP	生物多樣性研究躍進：澳門昆蟲新物種發現	梁志文	澳門昆蟲學會
2	002/2022/AP	澳門公交出行信息化技術研究與應用	雷劍，陳凱，司徒偉明	中國電信(澳門)有限公司，廣州華途信息科技有限公司，廣州交信投科技股份有限公司，廣東電信規劃設計院有限公司，澳門交通事務局
3	003/2022/AP	澳門地區女性產後盆底功能障礙性疾病診治體系的創建及推廣應用	謝昕，陳美婉，林仲秋，蔡嘉慧	鏡湖醫院，澳門大學

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4	004/2022/AP	粵港澳大灣區建築金屬圍護系統抗災性能、檢測和加固關鍵技術和工程應用	彭耀光，梁蔭冲，羅啟中	清華大學，香港理工大學，中國土木工程（澳門）有限公司，中國路橋工程有限責任公司，中國建築工程（澳門）有限公司
5	005/2022/AP	區塊鏈助力粵澳健康碼互認	李志文，陳偉傑，湯穎豪	萬高信息科技有限公司
6	006/2022/AP	智慧人類活動識別技術及其對智能應用的產業化	何國濤，譚錦榮，趙智豪，滕程	普強（國際）科技有限公司，普強時代（珠海橫琴）信息技術有限公司，澳門大學，立芯科技（珠海）有限公司
7	008/2022/AP	智能消毒機器人研發及應用	徐青松，譚立武	澳門大學
8	009/2022/AP	中葡英神經網絡機器翻譯平台	嚴肇基，謝丹嬋，張云峰，許立文	澳門理工學院機器翻譯暨人工智能應用技術教育部工程研究中心
9	010/2022/AP	波浪作用下在磁畸變環境中工作的船舶姿態的確定	Carlos Jorge Ferreira Silvestre，Joel Oliveira Reis	澳門大學

序號	項目編號	項目中文名稱	主要完成人	主要完成單位
10	012/2022/AP	非瓣膜病心房顫動患者的抗凝治療策略與規範管理：從研究到臨床應用	鍾桃娟，柯于梵，蕭湛潮，梁立彤	澳門鏡湖醫院、中山大學附屬第五醫院

Prémios de Ciência e Tecnologia 2022
A Lista de Aprovação do Exame de Formalidade

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
1	001/2022/AN	Random matrices, integrable systems and wireless communication	Chen Yang	Universidade de Macau
2	002/2022/AN	Smart and sustainable country and infrastructure	To Wai Ming	Instituto Politécnico de Macau
3	003/2022/AN	The mechanism of SARS-2 high transmissibility caused by double-mutations in its spike protein receptor binding domain	Wang San Ming, Siddharth Sinha, Benjamin Tam	Universidade de Macau
4	004/2022/AN	Image Recognition Technologies	Zhou Yi Cong	Universidade de Macau
5	005/2022/AN	New perspectives on the utilization of microorganisms to clean up the environment as an advanced treatment to recover resources from domestic and industrial wastewaters	Hojae SHIM	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
6	006/2022/AN	Research on Novel Multimode Antennas for Application in Low-Cost IoT Communication	Zhu Lei, Liu Neng Wu, Duan Jun Bing	Universidade de Macau
7	007/2022/AN	Autophagic modulators as a potential therapeutic strategy for important human diseases: Cancer, neurodegenerative and cardiovascular disorders	Wong Kam Wai, Law Yuen Kwan, Liu Liang, Mok Wing Fai, Paolo Saul Coghi	Universidade de Ciência e Tecnologia de Macau
8	008/2022/AN	Design, Implementation and Applications of Adaptive Fourier Decomposition Series Algorithms	Zhang Li Ming, Qian Tao, Tan Chun Yu, Wang Xiao Yin	Universidade de Macau, Universidade de Ciência e Tecnologia de Macau
9	009/2022/AN	“ Supramolecular cell” based drug delivery system for targeted therapy of inflammatory disease and cancer	Wang Rui Bing, Lee Ming Yuen, Gao Cheng	Universidade de Macau
10	010/2022/AN	Frontier exploration of key components for optical chips	Li Jian Qing, Shu Yi Qing, Hu Hai Guo, Zhang Ying Fang	Universidade de Ciência e Tecnologia de Macau
11	011/2022/AN	Research on Numerical Methods for Micromagnetic Simulation	Yang Lei, Cui Zi Xuan, He Jia Yun	Universidade de Ciência e Tecnologia de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
12	012/2022/AN	Drug discovery based on transition metal complexes	Leung Chung Hang, Lin Li Gen, Wong Kam Wai, Li Guo Dong	Universidade de Macau, Universidade de Ciência e Tecnologia de Macau
13	013/2022/AN	Detection and Therapeutic Targeting of Hypoxic Tumor Microenvironment	Chen Mei Wan, He Cheng Wei, Guo Zhao Pei	Universidade de Macau
14	014/2022/AN	High order numerical methods for differential equations with fractional derivatives	Vong Seak Weng, Jin Xiao Qing	Universidade de Macau
15	015/2022/AN	Photofunctional metal phenolic coordination materials and their biomedical applications	Dai Yun Lu	Universidade de Macau
16	016/2022/AN	Basic and translational research on tumor drug resistance	Leung Lai Han, Yao Xiao Jun, Fan Xing Xing, Wu Qi Biao, Cao Ya Bing	Laboratório de Referência do Estado para Investigação de Qualidade em Medicina Chinesa (Universidade de Ciência e Tecnologia de Macau), Hospital Kiang Wu

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
17	017/2022/AN	Integrated urban energy system operation and power quality management theory and methodology	Song Yong Hua, Wong Man Chung, Zhang Hong Cai, Dai Ning Yi, Lao Keng Weng	Universidade de Macau
18	018/2022/AN	Chinese medicine-derived polysaccharide materials for tissue repair	Wang Chun Ming, Niu Yi Ming, Wang Zhen Zhen	Universidade de Macau
19	019/2022/AN	Investigating the mechanisms of the important zin finger protein PATZ1 in regulating stem cell pluripotency and inhibiting cancer cell proliferation	Wu Qiang	Laboratório de Referência do Estado para Investigação de Qualidade em Medicina Chinesa (Universidade de Ciência e Tecnologia de Macau)
20	020/2022/AN	Advanced Analysis and Design Methods for Structural Steel Tubular Columns produced by Different Fabrication Methods	Quach Wai Meng	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
21	021/2022/AN	The systematic solution of the energy and waste issues during the urban metabolism process	Song Qing Bin, Liang Yang Yang	Universidade de Ciência e Tecnologia de Macau
22	022/2022/AN	Investigation of Excellent Optoelectronic Properties of Metal-Halide Perovskites	Xing Gui Chuan, Tang Zi Kang, Liang Chao, Guo Jia	Universidade de Macau
23	023/2022/AN	Multimedia Information Analysis and Security	Pun Chi Man	Universidade de Macau
24	024/2022/AN	Scientific Discoveries in Lunar and Martian Surface Environment Study	Zhang Xiao Ping, Xu Yi	Universidade de Ciência e Tecnologia de Macau
25	025/2022/AN	Precision Oncology: from Breast Cancer Associated Gene 1 (BRCA1) to Clinical Application	Deng Chu Xia, Xu Xiao Ling, Chen Qiang, Miao Kai, Sun Heng	Universidade de Macau
26	026/2022/AN	Discovery, clinical translation and industrialization of new drugs for the treatment of inflammation and immunomodulation	Zhu Yi Zhun	Universidade de Ciência e Tecnologia de Macau, Universidade de Fudan

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
27	027/2022/AN	Overcoming key scientific issues and applications in energy storage and conversion	Hui Kwun Nam, Shao Huai Yu, Hong Guo	Universidade de Macau
28	028/2022/AN	Study on new oral emulsions for poorly soluble drugs	Yi Tao	Instituto Politécnico de Macau
29	029/2022/AN	Research on the Granular Computing Approach to Information Fusion and Knowledge Acquisition in Multi-source Fuzzy Data Sets	Tsang Cheung Choy, Guo Yan Ting, Hu Meng, Zhang Qing Shuo	Universidade de Ciência e Tecnologia de Macau
30	030/2022/AN	TNFR2 is a new target for the treatment of cancer and autoimmune diseases	Chen Xin	Universidade de Macau
31	031/2022/AN	Biodiversity and Medicinal Value of Marine Ecosystem in Guangdong-Hong Kong-Macao Greater Bay Area and Portuguese Speaking Countries	Lee Ming Yuen, Fan Guang Yi	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
32	032/2022/AN	Topology and control of high-frequency isolated dual-bridge dc-dc converters	Li Xiao Dong	Universidade de Ciência e Tecnologia de Macau
33	033/2022/AN	STEP Perpetual Learning: Theories, Methodologies and Applications	Zhang Du, Liang Yan Yan, Cai Zhan Chuan, Dai Hong Ning	Universidade de Ciência e Tecnologia de Macau
34	034/2022/AN	First-principles study of the quantum atomic process in low-dimensional nanomaterials	Cai Yong Qing	Universidade de Macau
35	035/2022/AN	Application of innovative metabolomics and neuroimaging technology to explore protective effects of Omega-3 Polyunsaturated fatty acids on liver and brain disorders	Su Huan Xing, Wan Jian Bo	Universidade de Macau, Laboratório de Referência do Estado para Investigação de Qualidade em Medicina Chinesa (Universidade de Macau)
36	036/2022/AN	Research on Dynamical Processes of Planetary Atmospheres and	Chow Kim Chiu, Cai Tao, Xiao Jing	Laboratório de Referência do Estado para a Ciência Lunar e Planetária (Universidade de

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
		Application to the Chinese First Mars Mission Tianwen-1		Ciência e Tecnologia de Macau)
37	037/2022/AN	The mechanism and key techniques of diagnosis and treatment of COVID19 infection based on artificial intelligence and multiomics	Zhang Kang, Fok Man Son, Li Ting	Universidade de Ciência e Tecnologia de Macau
38	038/2022/AN	Anti-neurodegenerative disease Chinese medicinal compounds discovery based on multi-dimensional technology platforms and cross-species models	Lu Jia Hong, Su Huan Xing, Lee Ming Yuen	Universidade de Macau
39	039/2022/AN	Neuroprotective effect of artemisinin and its derivatives and its application in neurodegenerative diseases and stoke	Zheng Wen Hua	Universidade de Macau
40	040/2022/AN	Analysis and Optimal Design of Massive MIMO Systems	Ma Shao Dan, Shi Zheng, Zhang Huan, Wu Xian Da, Gong Shi Qi	Universidade de Macau

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41	041/2022/AN	Decision Modeling and Policy Contagion for Clean Energy and Carbon Mitigation	Chen Hsing Hung, Sheng Ni, Hsiao Yu Ling, Wei Xin Yang	Universidade de Ciência e Tecnologia de Macau
42	042/2022/AN	Developing Key Technologies for Multimedia Forensics and Security over Online Social Networks	Zhou Jian Tao, Li Yuan Man, Tian Jin Yu, Wu Hai Wei	Universidade de Macau, Universidade de Shenzhen
43	043/2022/AN	Research and application transformation of novel coronavirus prediction and diagnosis technology based on the concept of precision medicine	Yang Zi Feng, Zhong Nan Shan, Hon Chi Tin	Universidade de Ciência e Tecnologia de Macau, Guangzhou Institute of Respiratory Health
44	044/2022/AN	Research on the sustainable competitiveness of cities in the Guangdong-Hongkong-Macao Greater Bay Area	Liu Cheng Kun, Lin Yong Jia, Ma Ru Fei	Universidade de Ciência e Tecnologia de Macau
1	001/2022/AI	Regularization Techniques for High-dimensional Portfolio Optimization and Index Tracking	Shu Lian Jie	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
2	002/2022/AI	Digital Microfluidic System for Point-of-Care Nucleic Acids Detection	Mak Pui In, Jia Yan Wei, Law Man Kay, Rui Paulo da Silva Martins	Universidade de Macau
3	003/2022/AI	Advanced Power Electronics Circuits and Their Control Techniques in Smart Distribution Grids	Lam Chi Seng, Mak Pui In, Rui Paulo da Silva Martins	Universidade de Macau
4	004/2022/AI	Study of the prediction equation of glomerular filtration rate based on the metabolomics	Peng Hong Quan, Ao Ieong Chi Wa, Tsai Tsung Yang	Hospital Kiang Wu
5	005/2022/AI	Ultimately efficient electronic chips enabling a carbon-neutral zeta-scale data exchange capability	Chan Chi Hang, Chen Yong, Zhang Ming Lei, Yin Jun, Mak Pui In	Laboratório de Referência do Estado em Circuitos Integrados em Muito Larga Escala Analógicos e Mistos (Universidade de Macau)
6	006/2022/AI	Innovative methods and key equipment for large-volume single crystal growth	Li Hai Feng, Zhu Ying Hao, Xia Jun Chao, Wu Si, Zhou Peng Fei	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
7	007/2022/AI	Multiband resonator for circuit quantum electrodynamics	Ian Hou, Zhang Yan, Tam Kam Weng, Chio Chi Hou, Teng Cheng	Universidade de Macau
8	008/2022/AI	Applications of structural sparse regularization technologies in biological multi-omics big data	Liang Yong	Universidade de Ciência e Tecnologia de Macau
9	009/2022/AI	Nano foam concrete	Sun Guo Xing, Liang Rui	Universidade de Macau
10	010/2022/AI	A Kind of Human Endometrial Cancer Cell Line and Its Establishment Method	Meng Li Rong, Lang Bin	Instituto Politécnico de Macau
11	011/2022/AI	Linguistics-Driven Neural Machine Translation Model and Its Application in Chinese-Portuguese Machine Translation System	Wong Fai, Liu Xue Bo, Chao Sam	Universidade de Macau
12	012/2022/AI	Key Technologies and Applications in Intelligent Computing and Processing of Graphics and Images	Cai Zhan Chuan, Lan Ting, Ye Ben	Universidade de Ciência e Tecnologia de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
13	013/2022/AI	CANARIN：Environment Monitoring System	Tse Tan Sim, Tang Su Kit	Instituto Politécnico de Macau
14	014/2022/AI	Development and Application of High-Throughput Bio-Micromanipulation Robotic Systems	Xu Qing Song	Universidade de Macau
15	015/2022/AI	The Last Centimeter of Power and Data Delivery	Lu Yan, Lam Chi Seng, Huang Mo, Sin Sai Weng, Da Silva Martins, Rui Paulo	Universidade de Macau
1	001/2022/AP	Biodiversity research advance: Discovery of new insect species from Macao SAR, China	Leong Chi Man	Sociedade de Macau de Entomologia
2	002/2022/AP	Research and application of information technology for bus travel in Macao	Lei Jian, Chen Kai, Si Tou Wai Meng	China Telecom (Macau) Limitada, Hua Tu Information Technology, Guang Zhou Jiao Xin Tou, Guang Dong Planning and Designing Institute of Telecommunications Co.,Ltd.,

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
				Direcção dos Serviços para os Assuntos de Tráfego
3	003/2022/AP	The Establishment and Popularized Application of the Diagnosis and Treatment System for Female Pelvic Floor Dysfunction in Macao	Che Ian, Chen Mei Wan, Lin Zhong Qiu, Choi Ka Wai	Hospital Kiang Wu, Universidade de Macau
4	004/2022/AP	Advanced Technology and Application on Disaster Mitigation, Inspection and Strengthening of Metal Building Cladding System	Pang Yiu Kwong, Leong Iam Chong, Lo Kai Jone	Universidade de Tsinghua, Universidade Politécnica de Hong Kong, CCECC (Macau) Companhia de Construção e Engenharia Civil China, Limitada, China Road and Bridge Corporation, Companhia de Engenharia e de Construção da China (Macau)
5	005/2022/AP	Guangdong Macau Health Code Mutual Recognition with Blockchain	Lei Chi Man, Chan Wai Kit, Tong Weng Hou	InfoMacro Tecnologia de Informação Limitada

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
6	006/2022/AP	Intelligent human activities recognition techniques and their industrialization for smart applications	Ho Kuok Tou, Tam Kam Weng, Chio Chi Hou, Teng Cheng	Pachira(international) Technology Co., LTD., Pachira Times (Zhuhai Hengqin) Information Technology Co., Ltd, Universidade de Macau, Laxcen Technology (Zhuhai)
7	008/2022/AP	Development and Application of Intelligent Disinfection Robots	Xu Qing Song, Tam Lap Mou	Universidade de Macau
8	009/2022/AP	Plataforma de Tradução Automática Neural Chinês-Português-Inglês	Im Sio Kei, Tse Tan Sim, Zhang Yun Feng, Hoi Lap Man	Centro de Investigação de Engenharia em Tecnologia Aplicada à Tradução Automática e Inteligência Artificial, Ministério da Educação (Instituto Politécnico de Macau)
9	010/2022/AP	Attitude determination for marine vehicles working in magnetically	Carlos Jorge Ferreira Silvestre, Joel Oliveira Reis	Universidade de Macau

Número de série	Número do Aplicativo	Designação do Projecto	Agentes Principais	Instituições Principais para Investigação
		distorted environments under wave action		
10	012/2022/AP	Strategies of anticoagulation therapy and Standardized Management for Patients with Non-Valvular Atrial Fibrillation	Chong Tou Kun, O U Fan, Sio Cham Chio, Leong Lap Tong	Hospital Kiang Wu, The Fifth Affiliated Hospital of Sun Yat-sen University

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Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
1	001/2022/AN	Random matrices, integrable systems and wireless communication	Chen Yang	University of Macau
2	002/2022/AN	Smart and sustainable country and infrastructure	To Wai Ming	Macao Polytechnic Institute
3	003/2022/AN	The mechanism of SARS-2 high transmissibility caused by double-mutations in its spike protein receptor binding domain	Wang San Ming, Siddharth Sinha, Benjamin Tam	University of Macau
4	004/2022/AN	Image Recognition Technologies	Zhou Yi Cong	University of Macau
5	005/2022/AN	New perspectives on the utilization of microorganisms to clean up the environment as an advanced treatment to recover resources from domestic and industrial wastewaters	Hojae SHIM	University of Macau

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
6	006/2022/AN	Research on Novel Multimode Antennas for Application in Low-Cost IoT Communication	Zhu Lei, Liu Neng Wu, Duan Jun Bing	University of Macau
7	007/2022/AN	Autophagic modulators as a potential therapeutic strategy for important human diseases: Cancer, neurodegenerative and cardiovascular disorders	Wong Kam Wai, Law Yuen Kwan, Liu Liang, Mok Wing Fai, Paolo Saul Coghi	Macau University of Science and Technology
8	008/2022/AN	Design, Implementation and Applications of Adaptive Fourier Decomposition Series Algorithms	Zhang Li Ming, Qian Tao, Tan Chun Yu, Wang Xiao Yin	University of Macau, Macau University of Science and Technology
9	009/2022/AN	“ Supramolecular cell” based drug delivery system for targeted therapy of inflammatory disease and cancer	Wang Rui Bing, Lee Ming Yuen, Gao Cheng	University of Macau
10	010/2022/AN	Frontier exploration of key components for optical chips	Li Jian Qing, Shu Yi Qing, Hu Hai Guo, Zhang Ying Fang	Macau University of Science and Technology
11	011/2022/AN	Research on Numerical Methods for Micromagnetic Simulation	Yang Lei, Cui Zi Xuan, He Jia Yun	Macau University of Science and Technology

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12	012/2022/AN	Drug discovery based on transition metal complexes	Leung Chung Hang, Lin Li Gen, Wong Kam Wai, Li Guo Dong	University of Macau, Macau University of Science and Technology
13	013/2022/AN	Detection and Therapeutic Targeting of Hypoxic Tumor Microenvironment	Chen Mei Wan, He Cheng Wei, Guo Zhao Pei	University of Macau
14	014/2022/AN	High order numerical methods for differential equations with fractional derivatives	Vong Seak Weng, Jin Xiao Qing	University of Macau
15	015/2022/AN	Photofunctional metal phenolic coordination materials and their biomedical applications	Dai Yun Lu	University of Macau
16	016/2022/AN	Basic and translational research on tumor drug resistance	Leung Lai Han, Yao Xiao Jun, Fan Xing Xing, Wu Qi Biao, Cao Ya Bing	State Key Laboratory of Quality Research in Chinese Medicine (Macau University of Science and Technology), Kiang Wu Hospital

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
17	017/2022/AN	Integrated urban energy system operation and power quality management theory and methodology	Song Yong Hua, Wong Man Chung, Zhang Hong Cai, Dai Ning Yi, Lao Keng Weng	University of Macau
18	018/2022/AN	Chinese medicine-derived polysaccharide materials for tissue repair	Wang Chun Ming, Niu Yi Ming, Wang Zhen Zhen	University of Macau
19	019/2022/AN	Investigating the mechanisms of the important zin finger protein PATZ1 in regulating stem cell pluripotency and inhibiting cancer cell proliferation	Wu Qiang	State Key Laboratory of Quality Research in Chinese Medicine (Macau University of Science and Technology)
20	020/2022/AN	Advanced Analysis and Design Methods for Structural Steel Tubular Columns produced by Different Fabrication Methods	Quach Wai Meng	University of Macau

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
21	021/2022/AN	The systematic solution of the energy and waste issues during the urban metabolism process	Song Qing Bin, Liang Yang Yang	Macau University of Science and Technology
22	022/2022/AN	Investigation of Excellent Optoelectronic Properties of Metal-Halide Perovskites	Xing Gui Chuan, Tang Zi Kang, Liang Chao, Guo Jia	University of Macau
23	023/2022/AN	Multimedia Information Analysis and Security	Pun Chi Man	University of Macau
24	024/2022/AN	Scientific Discoveries in Lunar and Martian Surface Environment Study	Zhang Xiao Ping, Xu Yi	Macau University of Science and Technology
25	025/2022/AN	Precision Oncology: from Breast Cancer Associated Gene 1 (BRCA1) to Clinical Application	Deng Chu Xia, Xu Xiao Ling, Chen Qiang, Miao Kai, Sun Heng	University of Macau
26	026/2022/AN	Discovery, clinical translation and industrialization of new drugs for the treatment of inflammation and immunomodulation	Zhu Yi Zhun	Macau University of Science and Technology, Fudan University

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27	027/2022/AN	Overcoming key scientific issues and applications in energy storage and conversion	Hui Kwun Nam, Shao Huai Yu, Hong Guo	University of Macau
28	028/2022/AN	Study on new oral emulsions for poorly soluble drugs	Yi Tao	Macao Polytechnic Institute
29	029/2022/AN	Research on the Granular Computing Approach to Information Fusion and Knowledge Acquisition in Multi-source Fuzzy Data Sets	Tsang Cheung Choy, Guo Yan Ting, Hu Meng, Zhang Qing Shuo	Macau University of Science and Technology
30	030/2022/AN	TNFR2 is a new target for the treatment of cancer and autoimmune diseases	Chen Xin	University of Macau
31	031/2022/AN	Biodiversity and Medicinal Value of Marine Ecosystem in Guangdong-Hong Kong-Macao Greater Bay Area and Portuguese Speaking Countries	Lee Ming Yuen, Fan Guang Yi	University of Macau

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
32	032/2022/AN	Topology and control of high-frequency isolated dual-bridge dc-dc converters	Li Xiao Dong	Macau University of Science and Technology
33	033/2022/AN	STEP Perpetual Learning: Theories, Methodologies and Applications	Zhang Du, Liang Yan Yan, Cai Zhan Chuan, Dai Hong Ning	Macau University of Science and Technology
34	034/2022/AN	First-principles study of the quantum atomic process in low-dimensional nanomaterials	Cai Yong Qing	University of Macau
35	035/2022/AN	Application of innovative metabolomics and neuroimaging technology to explore protective effects of Omega-3 Polyunsaturated fatty acids on liver and brain disorders	Su Huan Xing, Wan Jian Bo	University of Macau, State Key Laboratory of Quality Research in Chinese Medicine (University of Macau)
36	036/2022/AN	Research on Dynamical Processes of Planetary Atmospheres and	Chow Kim Chiu, Cai Tao, Xiao Jing	State Key Laboratory of Lunar and Planetary Sciences

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
		Application to the Chinese First Mars Mission Tianwen-1		(Macau University of Science and Technology)
37	037/2022/AN	The mechanism and key techniques of diagnosis and treatment of COVID19 infection based on artificial intelligence and multiomics	Zhang Kang, Fok Man Son, Li Ting	Macau University of Science and Technology
38	038/2022/AN	Anti-neurodegenerative disease Chinese medicinal compounds discovery based on multi-dimensional technology platforms and cross-species models	Lu Jia Hong, Su Huan Xing, Lee Ming Yuen	University of Macau
39	039/2022/AN	Neuroprotective effect of artemisinin and its derivatives and its application in neurodegenerative diseases and stoke	Zheng Wen Hua	University of Macau
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42	042/2022/AN	Developing Key Technologies for Multimedia Forensics and Security over Online Social Networks	Zhou Jian Tao, Li Yuan Man, Tian Jin Yu, Wu Hai Wei	University of Macau, Shenzhen University
43	043/2022/AN	Research and application transformation of novel coronavirus prediction and diagnosis technology based on the concept of precision medicine	Yang Zi Feng, Zhong Nan Shan, Hon Chi Tin	Macau University of Science and Technology, Guangzhou Institute of Respiratory Health
44	044/2022/AN	Research on the sustainable competitiveness of cities in the Guangdong-Hongkong-Macao Greater Bay Area	Liu Cheng Kun, Lin Yong Jia, Ma Ru Fei	Macau University of Science and Technology
1	001/2022/AI	Regularization Techniques for High-dimensional Portfolio Optimization and Index Tracking	Shu Lian Jie	University of Macau

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2	002/2022/AI	Digital Microfluidic System for Point-of-Care Nucleic Acids Detection	Mak Pui In, Jia Yan Wei, Law Man Kay, Rui Paulo da Silva Martins	University of Macau
3	003/2022/AI	Advanced Power Electronics Circuits and Their Control Techniques in Smart Distribution Grids	Lam Chi Seng, Mak Pui In, Rui Paulo da Silva Martins	University of Macau
4	004/2022/AI	Study of the prediction equation of glomerular filtration rate based on the metabolomics	Peng Hong Quan, Ao Ieong Chi Wa, Tsai Tsung Yang	Kiang Wu Hospital
5	005/2022/AI	Ultimately efficient electronic chips enabling a carbon-neutral zeta-scale data exchange capability	Chan Chi Hang, Chen Yong, Zhang Ming Lei, Yin Jun, Mak Pui In	State Key Laboratory of Analog and Mixed-Signal VLSI (University of Macau)
6	006/2022/AI	Innovative methods and key equipment for large-volume single crystal growth	Li Hai Feng, Zhu Ying Hao, Xia Jun Chao, Wu Si, Zhou Peng Fei	University of Macau
7	007/2022/AI	Multiband resonator for circuit quantum electrodynamics	Ian Hou, Zhang Yan, Tam Kam Weng, Chio Chi Hou, Teng Cheng	University of Macau

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
8	008/2022/AI	Applications of structural sparse regularization technologies in biological multi-omics big data	Liang Yong	Macau University of Science and Technology
9	009/2022/AI	Nano foam concrete	Sun Guo Xing, Liang Rui	University of Macau
10	010/2022/AI	A Kind of Human Endometrial Cancer Cell Line and Its Establishment Method	Meng Li Rong, Lang Bin	Macao Polytechnic Institute
11	011/2022/AI	Linguistics-Driven Neural Machine Translation Model and Its Application in Chinese-Portuguese Machine Translation System	Wong Fai, Liu Xue Bo, Chao Sam	University of Macau
12	012/2022/AI	Key Technologies and Applications in Intelligent Computing and Processing of Graphics and Images	Cai Zhan Chuan, Lan Ting, Ye Ben	Macau University of Science and Technology
13	013/2022/AI	CANARIN：Environment Monitoring System	Tse Tan Sim, Tang Su Kit	Macao Polytechnic Institute

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
14	014/2022/AI	Development and Application of High-Throughput Bio-Micromanipulation Robotic Systems	Xu Qing Song	University of Macau
15	015/2022/AI	The Last Centimeter of Power and Data Delivery	Lu Yan, Lam Chi Seng, Huang Mo, Sin Sai Weng, Da Silva Martins, Rui Paulo	University of Macau
1	001/2022/AP	Biodiversity research advance: Discovery of new insect species from Macao SAR, China	Leong Chi Man	Macao Entomological Society
2	002/2022/AP	Research and application of information technology for bus travel in Macao	Lei Jian, Chen Kai, Si Tou Wai Meng	China Telecom (Macau) Company Limited, Hua Tu Information Technology, Guang Zhou Jiao Xin Tou, Guang Dong Planning and Designing Institute of Telecommunications Co.,Ltd., Transport Bureau

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3	003/2022/AP	The Establishment and Popularized Application of the Diagnosis and Treatment System for Female Pelvic Floor Dysfunction in Macao	Che Ian, Chen Mei Wan, Lin Zhong Qiu, Choi Ka Wai	Kiang Wu Hospital, University of Macau
4	004/2022/AP	Advanced Technology and Application on Disaster Mitigation, Inspection and Strengthening of Metal Building Cladding System	Pang Yiu Kwong, Leong Iam Chong, Lo Kai Jone	Tsinghua University, The Hong Kong Polytechnic University, China Civil Engineering Construction Company (Macau) Ltd., China Road and Bridge Corporation, China Construction Engineering (Macau) Company Limited
5	005/2022/AP	Guangdong Macau Health Code Mutual Recognition with Blockchain	Lei Chi Man, Chan Wai Kit, Tong Weng Hou	InfoMacro Information Technology Limited
6	006/2022/AP	Intelligent human activities recognition techniques and their	Ho Kuok Tou, Tam Kam Weng, Chio Chi Hou, Teng Cheng	Pachira(international) Technology Co., LTD., Pachira Times (Zhuhai Hengqin)

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		industrialization for smart applications		Information Technology Co., Ltd, University of Macau, Laxcen Technology (Zhuhai)
7	008/2022/AP	Development and Application of Intelligent Disinfection Robots	Xu Qing Song, Tam Lap Mou	University of Macau
8	009/2022/AP	Chinese-Portuguese-English Neural Machine Translation Platform	Im Sio Kei, Tse Tan Sim, Zhang Yun Feng, Hoi Lap Man	Engineering Research Centre of Applied Technology on Machine Translation and Artificial Intelligence, Ministry of Education (Macao Polytechnic Institute)
9	010/2022/AP	Attitude determination for marine vehicles working in magnetically distorted environments under wave action	Carlos Jorge Ferreira Silvestre, Joel Oliveira Reis	University of Macau
10	012/2022/AP	Strategies of anticoagulation therapy and Standardized	Chong Tou Kun, O U Fan, Sio Cham Chio, Leong Lap Tong	Kiang Wu Hospital, The Fifth Affiliated Hospital of Sun Yat-sen University

Serial Number	Application number	Project Title	Principal Persons to Complete the Project	Principal Institutions to Complete the Project
		Management for Patients with Non-Valvular Atrial Fibrillation		