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Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure ($)			Indicative Funding ($)			Total ($)	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24* (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)
Australian Capital Territory									
The Australian National University									
LE210100002 McClelland, Prof David E	**Australian Partnership in Advanced LIGO+: continuation** The aim of this project is, in collaboration with the USA and UK, to complete the installation and commissioning of the Advanced LIGO+ facilities in the USA in order to bring them to design sensitivity. These facilities expect to increase the event rate of gravitational wave signals by a factor of 125. This should lead to daily detections and the observation of new sources of gravitational waves. Given that only 5% of the universe is detectable by telescopes, the impact of gravitational wave detections on our understanding of the universe is inestimable. Australian partnership intends to enable our physicists and astronomers to be at the vanguard of this brand new field and inspire a new generation to study the physical sciences.	750,000.00	750,000.00	750,000.00	750,000.00	0.00	0.00	3,000,000.00	LASER INTERFEROMETER GRAVITATIONAL-WAVE OBSERVATORY
	National Interest Test Statement The broad interest in the recent detection of gravitational waves by LIGO demonstrates society's deep fascination with the universe and our place in it. Increasing the sensitivity of the LIGO detectors will allow humanity to prise open this exciting new window on the universe. This project will markedly increase Australia's standing in the global 'big science' effort to understand our universe. It will enable outcomes that will appear in seminal, highly cited papers adding to the body of knowledge in this field of research. Our continued partnership in this endeavour will ensure that the Australian public and researchers are at the forefront of this exciting new era in observational cosmology and in the new technology that will be required. Scientists and engineers trained on the facility will be highly skilled in optics, electronics, mechanics control systems, essential ingredients for the knowledge economy.								
LE210100028 Rohling, Prof Eelco J	**Australian Membership of the International Ocean Discovery Program** This proposal is for an 18-month membership of the International Ocean Discovery Program (IODP), the world's largest collaborative research program in Earth and Ocean sciences. The Program studies the history and current activity of the Earth by conducting seagoing coring expeditions and monitoring of instrumented boreholes, using globally unique infrastructure that Australians would otherwise have no access to. Program outcomes include understanding past global environmental change on multiple time scales, the deep biosphere, plate tectonics, formation and distribution of resources, and generation of hazards. These outcomes are paramount to Australia's national science and research priorities, and societal and economic prosperity.	2,000,000.00	1,000,000.00	0.00	0.00	0.00	0.00	3,000,000.00	GEOSCIENCE AUSTRALIA, GNS SCIENCE
	National Interest Test Statement Australia's marine jurisdiction is nearly double our land territory. Australia's blue economy contributes AU$68.1 billion and employs 393,000 people. It is forecast to grow to AU$100 billion per annum by 2025. The marine environment is also a source of hazards, such as earthquakes, volcanism, tsunamis, and long-term impacts including sea-level rise and ecosystem collapse. This project delivers Australia's continued membership of the International Ocean Discovery Program, which enables scientific ocean exploration using deep and specialised drilling that far exceeds our national capacity and supports Australian marine researchers to deliver improved understanding that will impact on government and industry ensuring they are better able to anticipate marine opportunities and hazards which will in turn safeguard the economic, cultural, and environmental prosperity that Australia derives from the marine environment.								

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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LE210100084	**Flexible Flame Aerosol Synthesis Technology**	269,020.00	0.00	0.00	0.00	0.00	0.00	269,020.00	
Tricoli, Prof Antonio	Funding is requested to establish a world-leading fabrication facility for nanostructured materials via flame synthesis. This is a scalable fabrication route used for industrial production of most nanoparticle commodities. The aim is to advance current capabilities by providing control over the reaction environment and flame reaction sources. This will extend the range of feasible materials from the current metal oxides to a broad family of nitrides, sulphides, and metal-organic frameworks, enabling the engineering of electrocatalysts, optoelectronic- and bio-materials. Benefits are expected in terms of fundamental and applied knowledge generation, with impact to the Australian industry sectors of Advanced Manufacturing, Energy and Health.								
	National Interest Test Statement The proposed nanomaterial synthesis facility provides excellent alignment with the strategic research directions of Advanced Manufacturing, Energy and Health. This facility will establish Australian world-leading capabilities for scalable synthesis of nanomaterials, with synergistic value to Australian mineral resources by providing a direct path for improving their value via export of advanced materials and devices. It will also generate new knowledge and intellectual properties for the Energy and Health sectors, by enabling the design of high performing materials for renewable energy storage, renewable fuel generation and biomedical applications, including medical diagnostics, drug delivery and tissue engineering. This will create further downstream benefit to the Australian society by contributing to reduction of CO2 footprint and improve efficacy of healthcare technologies, and support economic growth in these critical sectors.								
	The Australian National University	3,019,020.00	1,750,000.00	750,000.00	750,000.00	0.00	0.00	6,269,020.00	
	Australian Capital Territory	3,019,020.00	1,750,000.00	750,000.00	750,000.00	0.00	0.00	6,269,020.00	

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New South Wales

The University of New South Wales

LE210100042	**Cryo-Focused Ion Beam Facility for soft and hard materials**	970,000.00	0.00	0.00	0.00	0.00	0.00	970,000.00	
Tilley, Prof Richard T	The multipurpose Cryo-Focused Ion beam scanning electron microscope (Cryo-FIB) Facility aims to provide revolutionary insights into beam sensitive materials and biological molecules at high magnification. This instrument will be a unique configuration and the most advanced of its kind in Australia. It will be fitted with a gallium ion source, cryo-stage, cryo-lift out and cryo-transfer suite and capable of imaging and compositional analysis in two- and three-dimensions and preparing samples for atomic-scale analyses with complementary cryo-microscopies. This equipment aims to facilitate innovative research in the fields of energy materials, advanced manufacturing, nanomaterials and in situ cell and structural biology.								
	National Interest Test Statement								
	This Facility will provide access to revolutionising microscopy infrastructure for all Australian researchers. It will build upon existing investments in electron microscopy to develop and cater to cutting-edge research programs in new and more efficient materials for solar energy generation and storage, ground-breaking advances in the manufacturing of next generation aeronautical and defence materials, characterise novel nanocatalysts for the hydrogen economy and provide innovatory insights into how biological molecules are structured and function in cells and tissue. The investment in this Cryo-FIB facility will have measurable impact on Australian research outcomes, commercial enterprises/industry partners, will grow Australia's reputation as a hub of world-leading scientific investigation and will educate the next generation of Australian scientists.								
LE210100043	**The Australian Royal Commissions and Public Inquiries Library**	539,000.00	0.00	0.00	0.00	0.00	0.00	539,000.00	
Chung, A/Prof Philip T	This project aims to provide comprehensive free access online to the reports of all royal commissions and other public inquiries held in Australia since Federation. The project intends to support a wide understanding of the pivotal role public inquiries play in the development of Australian law and public policy. It is expected that these reports will be comprehensively integrated with all other legislation, case law and law reform reports on AustLII to promote a greater understanding of how the balance is struck between inquisitorial fact-finding and the right to procedural fairness of participants and of how justice is delivered through the inquiry function of public bodies.								
	National Interest Test Statement								
	The reports of royal commissions and other public inquiries provide essential context to legislative and judicial developments over time. Public inquiries are a trusted mechanism for the investigation of allegations of wrongdoing and maladministration and for the provision of independent policy advice to the executive. Public inquiries play a pivotal role in public debate and the development of Australian law and public policy and are an essential element of the Australian historical record. Recent inquiries such as the Royal Commission into Child Sexual Abuse and the Banking Royal Commission have also highlighted the important expressive value of inquiries to communities. Online publication of these resources, integrated with the wealth of other legal resources on AustLII will create the most comprehensive facility for researchers and policy analysts, and for all those seeking to better understand developments in Australian law, history, politics and public policy. These resources represent an investment in the rule of law in Australia.								

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LE210100050 Dempster, Prof Andrew G	**Spacecraft Innovation Laboratory** The Australian Spacecraft Innovation Laboratory is designed to provide researchers and entrepreneurs with a venue to integrate and test their “cubesats”, satellites the size of a loaf of bread, and small payloads. By centralising the satellite integration function, the standard of Australian space assets can be assured, giving researchers confidence that their spacebased experiments will succeed. Knowledge transfer to space start-ups will be accelerated by easing their access to space.	670,000.00	0.00	0.00	0.00	0.00	0.00	670,000.00	DELTA-V NEWSPACE ALLIANCE PTY LTD
	National Interest Test Statement The Spacecraft Innovation Laboratory will be a commercial-grade fabrication and test laboratory for the development of cubesats, and of payloads for space and high altitudes. The value of the global space industry will reach $1T by 2030. The Laboratory aims to provide a platform which will help build a sustainable Australian space industry that will participate fully in this industrial growth, in two ways: 1. It will make the design, development, integration and testing of cubesats more efficient, reducing risk and hence help bridge the "valley of death" for space start-up companies. 2. The Australian Government has committed to assist NASA in the Artemis Moon to Mars program. It will fund a number of technology demonstrators as a result. This central facility will make the development of those demonstrators from research to implementation highly accessible for start-ups and SMEs.								
LE210100086 Wu, Prof Tom T	**A platform for probing nanoscale magnetic states under multiple actuations** The proposed facility offers unique capabilities to investigate the interactions of spin with charge and lattice under external stimuli of light illumination, mechanical stress and voltage bias at various temperatures in a wide range of functional materials. Precise laser magnetometry and video-rate Kerr microscopy are integrated in a single magneto-optic Kerr effect (MOKE) system. This platform also aims to provide optical magnetic circular dichroism (OMCD) to assess electronic structures of semiconductors and biomedical materials. It will facilitate multidisciplinary research collaborations between academics and industries to advance next-generation spintronics, optoelectronics, energy conversion and storage, and biomedical technologies.	489,250.00	0.00	0.00	0.00	0.00	0.00	489,250.00	
	National Interest Test Statement This project aims to establish an integrated suite of highly specialised magneto-optical instrumentation capable of investigating the properties of next generation materials under multiple external stimuli. This will support breakthrough science, whose outcomes will lead to the development of new electronic and biomedical technologies, ranging from non-volatile computer memory to magnetic nanoparticles for medical diagnostics. This unique platform will fill a major gap in the current available facilities in Australia, supporting existing and emerging industries and enhancing Australia's global position as a leader in innovative spintronics, optoelectronics, energy conversion and storage, and biomedical technologies. It will also contribute to the development of the highly skilled workforce required by such industries.								
	The University of New South Wales	2,668,250.00	0.00	0.00	0.00	0.00	0.00	2,668,250.00	
The University of Newcastle									
LE210100184 Fleming, Prof Andrew J	**Femtoliter Liquid Deposition Facility** This project aims to create a research capacity for direct printing of femtolitre volumes of functional liquids onto devices and surfaces. This project expects to enable the development of new sensing and electronic devices that require a novel fabrication step with delicate materials that cannot be deposited using existing processes. Expected outcomes include new chemical and biological sensors created through collaborative research between the partner institutions and researchers. The benefits of this project should include the creation of a new rapid prototyping facility for Australian researchers, and the application of these capabilities for the development of new low-cost sensors for environmental gas sensing and glucose monitoring.	183,437.00	0.00	0.00	0.00	0.00	0.00	183,437.00	

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	National Interest Test Statement This research creates new capabilities for Australian researchers to print miniature sensors and electronic devices using tiny droplets of specialized liquids. These sensors are small enough to fit inside a wristwatch, name tag, or mobile phone. The end users of this research could include underground miners who need sensors to detect explosive chemicals in the air; health care patients who need instant blood testing; and consumers of water in areas that need warnings for high levels of dangerous chemicals. These new products are expected to create advanced tech job opportunities and new high value businesses. This new facility would print tiny liquid droplets in close proximity to one another, similar to an inkjet printer, except chemicals are printed instead of ink and the droplet size is one-thousand times smaller. These new capabilities will be the first in Australia and will be readily accessible to Australian researchers and businesses.								
	The University of Newcastle	183,437.00	0.00	0.00	0.00	0.00	0.00	183,437.00	
The University of Sydney									
LE210100011 James, Prof David E	**Integrated Multimodal System for Multiplexed Imaging of Signal Transduction** This project will introduce a unique microscopy platform and associated technologies into the Australian research environment that will enable researchers to redefine our understanding of molecular signal transduction. The instrumentation will enable the multidimensional imaging of live cells with unprecendented speed and sensitivity. The featured imaging modalities will enable the integration of distinct biological, biochemical and chemical probes with a focus on minimizing phototoxicity. Expected outcomes include new fundamental knowledge on molecular signal transduction and cell heterogeneity; development of novel probes and methodologies and the development of new and existing interdisciplinary research collaborations.	900,000.00	0.00	0.00	0.00	0.00	0.00	900,000.00	CENTENARY INSTITUTE OF CANCER MEDICINE & CELL BIOLOGY, HEART RESEARCH INSTITUTE AUSTRALIA
	National Interest Test Statement Health and survival are determined by making the right decisions at the right time and at the cellular level this is achieved via signal transduction. Understanding these molecular decisions is crucial to our understanding of health and disease. Underpinning this research is the ability to image signalling molecules with sufficient spatial and temporal resolution. This proposal will provide the requisite state-of-the-art instrumentation and bring together leading early career and established scientists in order to define our understanding of molecular signal transduction. By providing new tools to interrogate signal transduction, Australian research into cell function will be significantly enhanced. This research will also offer both economic and societal benefits for Australia, as a better understanding of cell function will lead to an improved understanding of ageing and disease, which in turn can inform better decision making about healthcare and social policy.								
LE210100025 Liao, Prof Xiaozhou	**Electron microscopy facilities for in-situ materials characterisation** This project aims to significantly strengthen our national capability in high resolution in-situ transmission electron microscopy through the introduction of special in-situ specimen holders and an imaging detector. The project expects to advance knowledge critical for the design of advanced materials with outstanding properties. Expected outcomes of this project will provide critical support for thorough understanding of how the microstructures of materials affect their mechanical, thermal, electrical, and magnetic properties and will facilitate strategic collaborations among Australian scientists. This should promote Australia’s global leadership in materials research and advanced manufacturing.	468,000.00	0.00	0.00	0.00	0.00	0.00	468,000.00	

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	National Interest Test Statement The successful acquisition of the requested facilities will significantly enhance Australia's materials research capability and help boost the competitiveness of Australian manufacturing industry. The project promises to improve and develop Australia's research infrastructure by developing new methods to utilise our state-of-the-art instrumentation to solve real-world problems. In-situ transmission electron microscopy is a powerful tool for revealing the nature of the structure–property relationships of materials that is critical for designing materials with outstanding properties. This is a burgeoning area of research and materials development, having grown rapidly over the last decade. The requested facilities will, for the first time, offer Australian scientists the ability to image the structures of materials at atomic resolution during quantitative in-situ straining experiments and explore how materials microstructure responds to magnetic excitation.								
LE210100040 Bartholomew, Dr John G	**Multifunctional deposition system for advanced superconducting circuits** This project aims to create a one-stop facility to enhance Australia's capacity to develop superconducting quantum technology centred on the unique capabilities of a Multifunctional Deposition System. The project will enable and expedite nanofabrication of complex circuits and expects to pioneer novel superconducting and hybrid quantum technologies, and high-tech classical devices for clean-energy and biomedical applications. Expected outcomes include robust multi-institutional and cross-disciplinary collaborations, and increased translation between cutting-edge theory and commercial prototypes. Benefits should include stronger industry engagement, training for next-generation innovators and a boost to Australian advanced manufacturing.	699,664.00	0.00	0.00	0.00	0.00	0.00	699,664.00	
	National Interest Test Statement Capabilities in precision engineering are vital to further Australia's position as a global leader in quantum technologies. A prime example is the world-leading fabrication facilities that drive Australia's pioneering program in semiconductor quantum devices. This project aims to extend that success by establishing state-of-the-art fabrication facilities to accelerate our emerging strength in superconducting quantum circuits. Creating a stronger and highly collaborative community of Australian researchers, equipped with total control over their device fabrication capabilities, will enable us to engineer innovative superconducting quantum circuits to drive breakthroughs in quantum computing and quantum networks. This facility will benefit Australian advanced manufacturing in the nascent quantum sector and cutting-edge classical technologies, including in clean-energy and biomedicine. Our strong potential for translating research outcomes into commercial enterprise will help secure economic and social benefits for Australia by capitalising on growing global demand for high performance quantum technologies.								
LE210100057 Paradowska, Prof Anna M	**Australian Stress Engineering Facility** This project aims to radically enhance the Australian capability for residual stress measurements and damage analysis. This project is expected to revolutionise stress engineering research in Australia by providing access to a state-of-the-art measurement capability that will enable on-site measurements at manufacturing plants and in laboratories. Expected outcomes of this project include the development and optimisation of advanced manufacturing and maintenance technologies for civil engineering structures. This should provide significant benefits in safety, reliability and economic impact to Australian researchers in academia and industry across manufacturing, civil, transport, defence and medical sectors.	650,000.00	0.00	0.00	0.00	0.00	0.00	650,000.00	AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION
	National Interest Test Statement This facility will provide access to state-of-the-art portable and non-portable residual residual-stress, distortion and deformation measurement technology. For the first time these cutting-edge research tools will be available to the Australian researchers and industry, enabling innovations and international collaborations in advanced manufacturing technologies and structural engineering, as well as providing training for the next generation of materials scientists and engineers in the use and applications of these unique and modern characterisation and stress measurement tools. This project will leverage substantial existing capability at ANSTOs two Materials Engineering Beamlines and investments at Australian universities in additive and advanced manufacturing research, by creating a comprehensive stress engineering measurement facility that will be unique in the world and available to all Australian researchers.								

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LE210100144	**High Performance Single Crystal X-ray Diffraction Facility**	1,225,000.00	0.00	0.00	0.00	0.00	0.00	1,225,000.00	
Kepert, Prof Cameron J	This project aims to establish an advanced multidisciplinary facility for the structural characterisation of chemical and biological molecules. Through providing a broad suite of advanced capabilities, including measurement under a range of conditions and rapid crystal screening, the project expects to greatly accelerate research efforts across a wide spectrum of the molecular sciences. Expected outcomes include detailed understandings of the structures and functions of an array of scientifically and technologically important systems, spanning materials, proteins and pharmaceuticals. This should provide significant benefits, both in advancing the understanding of these systems and in spurring commercial development and application.								
	National Interest Test Statement								
	The proposed infrastructure will promote research excellence across a broad spectrum of the molecular sciences, encompassing chemistry, biology and pharmacy. The cross-disciplinary use of the facility will foster the creation of powerful collaborations at the interfaces between these disciplines. This new capability will greatly accelerate research that will contribute to Australia's economic growth across the manufacturing, environmental and health spheres, spanning functional energy materials, molecular machines, protein and peptide function, and pharmaceuticals development. For example, it will enable research that will lead to new materials for the energy-efficient separation and storage of technologically important gases and liquids, providing increased efficiencies for Australia's manufacturing sector. It will also enable research that will benefit Australia's pharmaceutical industry through the design of improved formulations based on new understandings of biochemical interactions.								
LE210100156	**3D Two-Photon Nanoprinter for Advanced Multi-Functional Materials & Devices**	289,500.00	0.00	0.00	0.00	0.00	0.00	289,500.00	
Zreiqat, Prof Hala	The Nanoscribe Photonic Professional GT2 Two-Photon 3D Printer enables tailoring materials' architecture at nanoscale. This results in unique optical, mechanical, electrical, chemical, biochemical, and acoustic properties enabling a wealth of cutting-edge research activities in variety of fields including mechanical/optical/electrical metamaterials, bioinspired hard/soft materials, biomaterials (e.g., structured cell-tissue interfaces), biomedical devices (implantable devices and drug-delivery systems), nanofluidics, and photonic crystals. In each of these fields, we will use GT2 to print variety of polymers, hydrogels, metals and ceramics, for example by printing polymer-derived nanoceramics that will be simultaneously strong and tough.								
	National Interest Test Statement								
	The requested NanoScribe Photonic Professional GT2 Two-Photon 3D Printer (GT2) enables feature sizes down to 160 nm to be printed in volumes as large as 100×100×8 mm², a design space not achievable with any alternative subtractive or additive manufacturing technologies. By tailoring their internal configurations, new nano-structured materials and devices with extraordinary optical, mechanical, electrical, chemical, biochemical, and acoustic properties are achievable using the powerful nanofabrication GT2 facility. The facility will support a broad range of research areas to underpin advanced manufacturing technologies in biomedical engineering (biomaterials with significantly improved performance, and biomaterials to build cell-based biomedical devices); nano electronics systems (integrated processors for handling radically increasing requirements of network speeds and big-data processing); and nanoporous filtering (bioselective capture and rapid detection of microorganisms). The GT2 facility will unlock research to support Australian SMEs and large firms to develop competitive nano-engineered 3D products.								
	The University of Sydney	4,232,164.00	0.00	0.00	0.00	0.00	0.00	4,232,164.00	

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University of Wollongong									
LE210100109 Guo, Prof Zaiping	**Raman Spectroscopic System for In-Operando Electrochemical Studies** This proposal aims to establish a Raman microscopic system with real-time tracking capability, which will allow investigation of the activities of battery components during charging. An instrument that allows this level of interrogation is currently not available in Australia. Expected outcomes include advanced knowledge for improved battery technology, which will meet the increasing demand of electronic applications and provide commercial opportunities in Australia. This system will be highly versatile and extendable to other fields of energy and materials-related research, providing high-quality training of researchers, as well as a platform from which to enhance materials research capabilities in Australia.	240,000.00	0.00	0.00	0.00	0.00	0.00	240,000.00	
	National Interest Test Statement This powerful Raman microscopic system will significantly enhance the current understanding of how batteries operate by examining the variation of battery components during charging in real-time. The success of this project will strengthen the fundamental and advanced knowledge of rechargeable batteries and will have significant impacts on the social, environmental, and economic aspects of Australian society. Notably, the project aligns with the “Clean and renewable energy” Science and Research Priority identified by the Australian Government. The outcomes could be key to facilitating the transformation from fundamental materials research to its practical application: the established advanced battery technology. This outcome will not only help to provide employment and commercial opportunities in Australia, but also enhance the research reputation of Australian materials researchers. The system will be used by independent research groups across major institutions in New South Wales and Adelaide regions.								
LE210100166 van Oijen, Prof Antoine M	**High-throughput camera system for biological cryo-electron microscopy** Visualising the structure of biological macromolecules such as proteins and other subcellular components is critical to understand the fundamentals of life. The integration of the Gatan K3 high-throughput camera system with one of the most advanced cryo-electron microscopy facilities in Australia and the Southern Hemisphere will transform the capacity of Australian researchers to study the world around us at the molecular detail needed to advance innovative research. The addition of this equipment to the University of Wollongong's research facility Molecular Horizons will result in a step change in the areas of bionanotechnology, advanced manufacturing, diagnostics, and many other areas at the interface of biology, chemistry and physics.	626,800.00	0.00	0.00	0.00	0.00	0.00	626,800.00	
	National Interest Test Statement The introduction of the newly-developed Gatan K3 high-throughput camera system to the world-leading microscopy infrastructure at the University of Wollongong will greatly enhance access of researchers and engineers to revolutionary molecular imaging capabilities, cementing Australia’s leading role in the life sciences, bioengineering, advanced materials and nanotechnology. This new technology will meet an existing need within Australian industry for access to molecular characterisation capability. The molecular visualisation technology will further strengthen Australia's global position in this rapidly evolving area that underpins production of high-tech and high-value goods. It is highly relevant to industry as understanding of molecular structures allows us to develop resistant crops, new and improved drugs, or create enzymes that catalyse reactions for biotechnology and bio-processing applications. The knowledge acquired with this equipment will ultimately play a key role in the development and manufacturing of diagnostics, pharmaceuticals, and materials for energy capture and storage.								
	University of Wollongong	866,800.00	0.00	0.00	0.00	0.00	0.00	866,800.00	
	New South Wales	7,950,651.00	0.00	0.00	0.00	0.00	0.00	7,950,651.00	

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Queensland

The University of Queensland

LE210100036	**A customised triple-beam microscope for precise fabricating/characterising**	950,000.00	0.00	0.00	0.00	0.00	0.00	950,000.00	
Zou, Prof Jin	This project aims to establish a customised triple-beam microscope to enable precise fabrication and polishing (using ion beams) and characterisation (using electron beam) of a wide range of advanced materials. It will provide solutions to prepare ultra-high quality and artefact-free specimens for transmission electron microscopy studies, and allow fabrication of unique nanostructures and nanostructured templates for high-performance applications. The customised features of the proposed instrument are the first of its kind in Australia. The new knowledge developed through this project will significantly impact on scientific insights and practical applications of new materials related to physics, chemistry, biology, geology and engineering.								

National Interest Test Statement

The proposed customised triple-beam microscope with two vacuum and cryogenic transfer systems will provide Australia a new-generation and unique tool for preparation of ultra-high quality and artefact-free specimens for high-end scanning/transmission electron microscopic investigations. It also allows the fabrication of fine and unique nanostructures and nanostructured templates for high-performance applications, such as new renewable energy generation and storage, novel electronic materials, and advanced biological applications. The customised features of the proposed instrument are the first of its kind in Australia and the first outside semiconductor industry worldwide. Consequently, this project will enable Australia to remain in its leading position of international research in these areas. Importantly, through developing new sustainable and energy efficient technologies, this project will deliver new solutions to Australian industry, ultimately benefiting Australian economy and society, as well as maintaining Australian's health and wellbeing.

LE210100124	**An Advanced Ultrafast Laser Spectroscopy Facility in Queensland**	538,590.00	0.00	0.00	0.00	0.00	0.00	538,590.00	
Moore, Dr Evan G	The project aims to establish a world-class ultrafast laser spectroscopy facility to investigate how molecules interact with visible or ultraviolet light. Light-matter interactions are key to energy generation in nature through photosynthesis as well as everyday technologies including optical communications and displays. This project expects to generate new knowledge in on how light interacts with matter at the molecular level. Expected outcomes of the ultrafast spectroscopic measurements will be understanding the fate of light absorbed by or generated in different materials. Application of the knowledge gained will enable the design of materials for more efficient technologies such as solar cells, lighting, and sensors.								

National Interest Test Statement

Australia has world-leading technology development programs in areas including green materials synthesis, flat panel displays and lighting, solar cells, imaging, sensors, and lasers. A feature common to each of the technologies is that they either absorb or generate light. It is therefore critical to be able to elucidate a detailed understanding of the light-matter behaviour of molecules (or atoms) that are used in these technologies if their performance is to be enhanced. Ultrafast spectroscopic methods are critical for gaining that understanding by providing almost instantaneous information about what happens when a material absorbs or generates a photon (packet of light). The knowledge gained could lead to more efficient solar cells and lighting, leading to a decrease in Australia's carbon footprint and more cost-effective electricity generation and usage. Such techniques have already been utilised in the creation of an Australian commercial sensor technology, with implications for homeland security and hence societal benefit.

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LE210100137	**Australian Environmental Specimen Bank: advancing specimen bank capability**	881,758.00	0.00	0.00	0.00	0.00	0.00	881,758.00	QUEENSLAND HEALTH
Mueller, Prof Jochen F	The aim of this LIEF is to advance Australia's specimen banking capabilities through a new, enhanced national facility, the Australian Environmental Specimen Bank (AESB). The AESB would be founded on a unique current archive of human and environmental samples established by the partners to the LIEF. Importantly, the AESB would be managed as a nationally available (to all public sector researchers), operationally self-funded resource for integrated exposure research into the future. The archive is expected to support longitudinal and cross-sectional studies to assess trends in exposure to chemical and biological hazards in the Australian population, identify emerging hazards, and provide a scientific basis for policy and regulatory actions.								
	National Interest Test Statement								
	The Australian Environmental Specimen Bank (AESB) aims to deliver a national sample collection that is relevant to a large sector of the Australian research community, including exposure science researchers and diverse allied disciplines, from public health to antimicrobial resistance and ecology. Shared access to archived environmental and human samples enables multidisciplinary longitudinal and cross-sectional studies to understand exposure pathways and assess short- and long-term chemical and biological hazard exposures. In turn, this benefits Australian government through delivery of robust scientific evidence for policy making to protect environmental and human health. Thus, the AESB represents an enduring national resource that enhances Australian exposure research capabilities, and enables effective management and regulation of chemical and biological hazards in Australia. Retrospective mapping of hazards from source to exposure in our communities and environment also leads to social, environmental and economic benefits through focused and timely intervention strategies to mitigate adverse exposures.								
LE210100148	**Advanced Nuclear Magnetic Resonance Technologies for Southeast Queensland**	1,350,000.00	0.00	0.00	0.00	0.00	0.00	1,350,000.00	
Capon, Prof Robert J	This project aims to establish an advanced Nuclear Magnetic Resonance capability and capacity at two of Queenslands' leading research intensive universities. The project expects to enhance the scope and productivity of hundreds of research projects spanning natural products, synthetic, medicinal, materials and environmental science. Expected outcomes include smarter science, more productive collaborations and superior research training, leading to innovative solutions to challenging problems that confront science and society. This investment should provide significant benefits in the form of new knowledge across multiple disciplines, informing the design of future medicines, agrochemicals, materials and other products.								
	National Interest Test Statement								
	Nuclear magnetic resonance (NMR) is the definitive molecular analysis tool for organic chemicals, polymers and materials, and is pivotal to the international competitiveness of a wide array of scientific research. NMR informs our understanding of the structure, function and properties of natural and synthetic chemicals, from small molecules to peptides to proteins, and of new materials, critical to modern societies. This knowledge in turn informs the design, development and production of new scientific tools, as well as safer, more effective and environmentally sustainable medicines, agrochemicals and materials. The NMR facility will inform the future design of a broad range of high value chemical products for polymer and materials production; for example for better batteries and solar panels to improve energy security; to create chemicals for better crop and livestock protection and new engineering methods for the manufacture of advanced materials. These will, in turn, deliver new commercialisation opportunities, improving economic outcomes for Australia in the form of new investments, industries and jobs.								
	The University of Queensland	3,720,348.00	0.00	0.00	0.00	0.00	0.00	3,720,348.00	
	Queensland	3,720,348.00	0.00	0.00	0.00	0.00	0.00	3,720,348.00	

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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South Australia									
Flinders University									
LE210100007 Holledge, Em/Prof Julie M	**AusStage LIEF 7: The international breakthrough** The aim of AusStage LIEF 7 is to enhance the world's oldest and most extensive national dataset on live performance. The project expects to maximise research arising from the global flow of data now accessible following the adoption of the AusStage schema by Norway, the UK, and potentially, China. Expected outcomes include improvements to the AusStage user interface; adaptation of the AusStage schema to support longitudinal studies of the impact of government policies; and development of AusStage immersive virtual reality theatres to popularise delivery of performing arts research. These innovations should benefit Australia by reinforcing AusStage's position as an international leader in the provision of digital research infrastructure. **National Interest Test Statement** AusStage is a pioneering database that holds over quarter of a million records about Australian performance. It is recognised as a significant Australian discovery that transforms our understanding with strong cultural benefits. It is a model for performing arts databases across the world; with the adoption of the AusStage schema, particularly in the UK, new opportunities for research into the global transmission of performance culture have become possible. In the midst of ever faster changes in technology, radically new ways of analysing these increasingly large flows of data need to be developed. This project will enhance the AusStage interface to support all its users, whether the general public, students or researchers, to enable them to create their own experience and use of this data. In doing so this project will increase Australia's research and innovation capacity to generate new knowledge and result in the development of new technologies. This project will enhance AusStage to ensure that Australia retains its position as an international leader in research infrastructure for the performing arts.	566,523.00	0.00	0.00	0.00	0.00	0.00	566,523.00	AUSTRALIAN DANCE THEATRE, PERFORMING ARTS HERITAGE NETWORK OF MUSEUMS AUSTRALIA, AUSTRALIA COUNCIL, VICTORIA AND ALBERT MUSEUM, UNIVERSITY OF OSLO, NORWAY, THE HANG SENG UNIVERSITY OF HONG KONG
LE210100037 Moffat, Dr Ian A	**A National Facility for the 3D Imaging of the Near Surface** This proposal aims to fund the establishment of a National Facility for the 3D Imaging of the Near Surface. It aims to provide Australian researchers with access to next-generation geophysical instruments for high-resolution landscape scale mapping of the shallow subsurface. The expansive size and impressive density of these data can fundamentally change the research questions that can be asked in the fields of archaeology, earth, environmental and forensic science. This integrated suite of equipment is currently not available in the Southern Hemisphere and will, if funded, position Australia at the forefront of the exciting field of near surface geophysics and facilitate collaboration with partner institutions in Asia, Africa and Oceania. **National Interest Test Statement** This unique facility will have important social, cultural and economic benefits, particularly in the fields of cultural heritage management, law enforcement, mining, agriculture and tourism. The equipment to be funded through this proposal will revolutionize the location of unmarked graves and archaeological sites by dramatically increasing the efficiency and speed of subsuface mapping using geophysical techniques. This will have considerable benefits for communities impacted by crime, Indigenous Australians, business associated with heritage tourism and industries undertaking cultural heritage management assessments. This facility will also be used to provide economically important high-resolution data to locate shallow groundwater sources, map mineral deposits and understand changes to coastlines relating to sea level variation.	279,591.00	0.00	0.00	0.00	0.00	0.00	279,591.00	UNIVERSITY OF CYPRUS, GHENT UNIVERSITY, BELGIUM, INSTITUTE FOR MEDITERRANEAN STUDIES, FOUNDATION FOR RESEARCH AND TECHNOLOGY-HELLAS, VESTFOLD AND TELEMARK COUNTY COUNCIL
	Flinders University	846,114.00	0.00	0.00	0.00	0.00	0.00	846,114.00	

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The University of Adelaide									
LE210100015 Rowell, Prof Gavin P	**The Cherenkov Telescope Array - From Production towards Operation** The Cherenkov Telescope Array is a transformational facility in very-high-energy gamma-ray astronomy. It will be 10 times more sensitive than current instruments and will revolutionise many topics in high energy astrophysics, and in astro-particle physics such as dark matter. Over 1000 scientists from over 30 countries are involved and the first telescopes on the southern hemisphere site in Chile will be installed from about 2021. This project will ensure Australia's contribution to complete the facility, leading into its operations phase (starting in 2027). It will also fund unique optical astronomy hardware that will enable Australian scientific leadership in supporting some of the Cherenkov Telescope Array's Key Science Projects.	370,000.00	570,000.00	570,000.00	170,000.00	0.00	0.00	1,680,000.00	ARMAGH OBSERVATORY AND PLANETARIUM, MAX PLANCK INSTITUTE FOR NUCLEAR PHYSICS, NAGOYA UNIVERSITY, JAPAN
	National Interest Test Statement This project will ensure Australia's contribution and leadership on the world stage in the construction of a new multi-national A$580 million facility; the Cherenkov Telescope Array. This facility will be 10 times more sensitive than current instruments and will revolutionise many topics in astrophysics. Through our development of sophisticated data-analysis algorithms and the construction and operation of high-tech gamma-ray cameras, this project will provide world-class training opportunities for Australian researchers and students to gain industry-relevant skills in areas such as high-speed electronics, optics, and machine learning techniques. Such training underpins our country's future growth in the space science industry, space situational awareness, defence and surveillance research, meteorology, and information technology sectors. A new ultra-sensitive optical detector will also be developed with local Australian industry, for deployment on optical telescopes in Australia and internationally which will further enhance Australia's significant global leadership in this area.								
LE210100139 Abell, Prof Andrew D	**Revitalizing facilities for nuclear magnetic resonance in South Australia** Nuclear magnetic resonance (NMR) spectroscopy is the single most powerful spectroscopic tool for determining molecular structure. Our aim is to upgrade NMR infrastructure available to researchers across South Australia with an integrated and complementary array of state-of-the-art spectrometers to diversify usage across a range of disciplines. Replacement of outdated spectrometers will modernise core NMR facilities along with installation of new probes to improve sensitivity and the ability to analyze small sample quantities. Our overall strategy is to maximize capability and minimize duplication, while bringing South Australia's NMR capabilities up to a national and international standard.	1,240,000.00	0.00	0.00	0.00	0.00	0.00	1,240,000.00	SOUTH AUSTRALIAN HEALTH AND MEDICAL RESEARCH INSTITUTE LIMITED, AUSTRALIAN WINE RESEARCH INSTITUTE
	National Interest Test Statement Nuclear magnetic resonance (NMR) spectroscopy is the most powerful spectroscopic tool for elucidating the structures of molecules and its use is fundamental to the molecular sciences, particularly chemistry. The structural information gained from NMR experiments underpins major and emerging technical developments in many other disciplines including biology, biochemistry, physics, health sciences, pharmaceutical sciences, chemical engineering, and technology. This then sets the scene for future commercial opportunities and industries in drug discovery, disease diagnosis and monitoring, and new medical and industry-ready devices. A coherent, state-of-the-art South Australian facility is proposed to meet the growing needs of researchers across the three local universities and institutes, as well as national and international collaborations and trainees.								

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LE210100153 Qiao, Prof Shizhang	**Integrated In situ Characterisation Facilities for Energy Studies** This project aims to establish a new capability to reveal catalytic behaviour of materials under practical working conditions at multi-scale levels. Through in situ monitoring of surface, interface and structural properties of catalysts, this unique integrated facility will overcome current limitations due to a lack of understanding of reaction mechanism, by ex situ and/or individual in situ characterisations. This world-class facility will significantly advance a range of electrocatalysis, photocatalysis and battery applications for renewable energy-storage and clean-fuel generation. This will be Australia's only platform; it will benefit a number of innovative research projects in energy, catalysis and environmental and materials science.	497,264.00	0.00	0.00	0.00	0.00	0.00	497,264.00	
	National Interest Test Statement This state-of-the-art facility will enable advances in the development of effective solutions for low-cost, low-emission alternative energy technologies including conversion and storage by electrocatalysis, photocatalysis and battery applications. These techniques will utilise Australia's abundant renewable energy, including sunlight, wind and tidal resources, to produce sustainable and safe chemicals, fuels and electricity. This will significantly boost Australia's energy-revolution from fossil-fuels to renewable energy sources. Success will underpin and accelerate technological solutions to the conversion and storage of intermittent renewable energies with high energy density, and will provide significant environmental benefit to Australia and globally. The project will support Australian aspirations to create new-markets and supply-chains as renewable energy exporters, together with expansion of industries and employment, particularly in rural and regional areas that are most exposed to the decline of the mining and extraction industries.								
LE210100155 Gilliham, Prof Matthew	**Advancing 4D fluorescence microscopy within Australia** This multi-institutional proposal aims to establish a state-of-the-art Lightsheet microscope facility in South Australia with enhanced analysis infrastructure and a national user support network. Expectations are, this will transform researcher outcomes for multiple disciplines by facilitating high-resolution four-dimensional interrogation of novel biological processes. Significant benefits will include the ability to image deep within living tissue over long time-scales without inducing phytotoxicity to produce high-impact fundamental and translatable outcomes, the development of novel probes and methodologies, new cross-disciplinary collaborations, and new and unique funding, student training and public engagement opportunities.	909,079.00	0.00	0.00	0.00	0.00	0.00	909,079.00	SAHMRI
	National Interest Test Statement Ultramodern high-resolution four-dimensional deep-tissue imaging will power breakthrough discoveries from Australian researchers and industry to drive improved outcomes across agriculture, biotechnology and life sciences more generally. Agricultural and Life Sciences are key Australian research strengths and vital to the national economy. The $60 billion Australian Agricultural industry contributes 3% to GDP, with exports totalling 77% of annual production, and ASX-listed Life Sciences companies have a market capitalisation of $170 billion. Targeted outcomes from this multidisciplinary proposal include: improved crop drought tolerance, nutrition, fertility and yield; novel strategies to protect against plant and animal pathogens, including zoonotic infections; and new biotechnological approaches that will positively impact livestock reproduction, welfare, and quality of life. Innovation stemming from this infrastructure will make valuable contributions to our nation's drive to achieve a $100 billion Agricultural industry by 2030 and the continued growth of Australian Life Sciences industries.								

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LE210100163 Sumby, Prof Christopher J	**Structure Determination Pipeline Capabilities for South Australia** This project aims to complete a high-throughput, automated pipeline for biomolecule crystallisation and provide enhanced X-ray structure determination capabilities for all sample types. This is critical because X-ray crystallography remains the primary technique for achieving molecular level insights to help solve cutting-edge problems in life, materials, chemical, earth and agricultural sciences. The diverse researcher community in South Australia will benefit from a more rapid structure determination pipeline from molecular sample to structure. The infrastructure will drive research findings in energy and resources, food, soil and water security, advanced manufacturing and life sciences and lead to economic and technological impacts. **National Interest Test Statement** Cutting-edge problems relating to energy and resources, food and water security, advanced manufacturing and life sciences require the atomic level insight garnered through X-ray crystallography. This includes the development of new materials for clean energy technology, new mineral discovery and its implications for future resource streams, an understanding of plant physiology leading to new products to reduce food waste, the discovery of new pharmaceuticals through structure-guided design, and insights into the mechanisms of life and disease. This wide body of impact arises because the precise three dimensional arrangement of atoms within molecular and macromolecular structures defines their function. The structural insight garnered underpins the conversion of academic research into real benefits for the Australian community and is critical for the competitiveness of Australian industry. This application will expand the pipeline for structure determination, thereby enabling scientific research that will allow the South Australian research community to make scientific breakthroughs that benefit Australia.	860,365.00	0.00	0.00	0.00	0.00	0.00	860,365.00	SAHMRI, SOUTH AUSTRALIAN MUSEUM
	The University of Adelaide	3,876,708.00	570,000.00	570,000.00	170,000.00	0.00	0.00	5,186,708.00	

University of South Australia

LE210100183 Lombi, Prof Enzo	**An ICP-ToF-MS facility for environmental, mineral and biological science** This project aims at establishing a facility for the detection, quantification and rapid mapping of elements and their isotopes in nanoparticles and a diverse set of biological and earth materials. The facility consists of a latest generation ICP-ToF-MS that can simultaneously collect a full suite of isotopic information (Li to U) from liquid samples or, in combination with laser ablation and laser induced breakdown spectroscopy, solid samples. It will enhance capabilities and sample throughput in environmental science, geoscience, biology and cultural heritage research, significantly accelerating the discovery of new ore bodies, improving environmental risk assessment and assisting research in cancer biology. **National Interest Test Statement** This infrastructure will provide Australian scientists with an unprecedented ability to accurately and rapidly measure elements and isotopes in a diverse variety of samples. Rather than establish a discipline-specific facility, this project aims to establish new analytical capabilities critical to a range of research endeavours, thus reducing duplication and providing high value for money. The facility will enable economic benefits though efficient high throughput analyses of mineral samples that will lead to the discovery of new ore bodies. It will enable environmental benefits by ensuring, for example, a thorough risk assessment of new contaminants such as engineered nanoparticles. It will enable social benefits by providing new insights into cancer biology. Finally, it will enable cultural benefits through a better understanding of natural mineral pigments used in Aboriginal Australian objects.	715,000.00	0.00	0.00	0.00	0.00	0.00	715,000.00	SA PATHOLOGY, GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
	University of South Australia	715,000.00	0.00	0.00	0.00	0.00	0.00	715,000.00	
	South Australia	5,437,822.00	570,000.00	570,000.00	170,000.00	0.00	0.00	6,747,822.00	

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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Tasmania									
University of Tasmania									
LE210100140 Paull, Prof Brett	**Quarantined ion chromatography mass spectrometry (IC-MS) facility** This proposal seeks to establish a quarantined facility for 'ion chromatography-mass spectrometry', to provide high resolution ion chromatographic and mass spectrometric analytical capability to the environmental, analytical/bioanalyical, and industrial science research communities. The state-of-the-art facility will represent the only quarantined high-resolution IC-MS facility within Australia, and therefore not only support the above communities within Australia, but the potential to facilitate research collaboration internationally, including supporting Australia's leading Antarctic Science programs.	275,000.00	0.00	0.00	0.00	0.00	0.00	275,000.00	AUSTRALIAN ANTARCTIC DIVISION
	National Interest Test Statement The proposed facility presents an advanced enabling analytical capability, which has significant impact across a diverse range of fundamental and applied fields, including those related to improving health and well-being of society, together with greater understanding of the health of the environment. In addition, the facility will provide an analytical solution to current challenges within several important industrial sectors, not least food and aquaculture, mining, pulp and paper production, and the fine chemical industries, including pharmaceuticals and nutraceuticals/natural products. The quarantined facility will enable the Australian research community to participate more fully in international studies in areas of environmental science we have hitherto been excluded from due to lacking specialist facilities - most notably analysis of materials and samples (e.g. ice cores) from Antarctica.								
	University of Tasmania	275,000.00	0.00	0.00	0.00	0.00	0.00	275,000.00	
	Tasmania	275,000.00	0.00	0.00	0.00	0.00	0.00	275,000.00	

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Victoria									
Monash University									
LE210100019	**Collaborative robotics for structural assembly and construction automation**	664,580.00	0.00	0.00	0.00	0.00	0.00	664,580.00	
Bai, Prof Yu	Recent robotic technologies present great opportunity for construction industry to improve quality and productivity while no state of the art research infrastructure has been developed yet for this need. The proposed facility aims to provide a unique platform on research and development for structural assembly and construction automation. It features by a flexible and adaptive design and instrumentation of structures and space for a team of collaborative robotics in an interactive environment to achieve automated prefabrication, assembly and building. The outcomes are expected to transform current labor-intensive construction industry to highly automated and accurate manufacturing industry with significant benefits to economy and safety.								
	National Interest Test Statement The construction industry contributes over 8% of gross domestic product. However, the methods of in this industry have not adapted over the past 40 years to use digital technologies in prefabrication and off-site manufacturing. This project will establish a state-of-the-art collaborative robotics facility to accelerate the automation of manufacturing in the construction industry - incorporating new sensors, robotics and data analytics into construction workflows. The facility, the first of its kind in Australia, will integrate motion sensor technology with mobile robotic components and human workers to safely automate the fabrication of construction components. Research in the new facility will demonstrate cutting-edge technologies and develop new products to increase the safety and productivity efficiency of these new production methods. The outcomes will also underpin future construction automation technologies for deployment in remote environments such as underground, in the ocean and in space.								
	Monash University	664,580.00	0.00	0.00	0.00	0.00	0.00	664,580.00	
RMIT University									
LE210100100	**Multifunctional Platform for Chemical Manufacturing and Energy Materials**	975,934.00	0.00	0.00	0.00	0.00	0.00	975,934.00	
Lee, Prof Adam F	We aim to establish the first platform in Australia for the continuous production and in-situ characterisation of molecules and nanomaterials. This project expects to generate new knowledge in the area of functional materials using an interdisciplinary approach. The expected outcomes will be a unique analytical capability for rapid screening of synthetic and operational parameters, and unprecedented fundamental insight into chemical reactions to inform the design and development of sustainable chemical processes. This proposal will provide significant benefits to cutting-edge research in catalysis, polymer engineering, separation science, CO2 capture and organic synthesis, to positively impact on the energy-manufacturing-environment nexus.								

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	National Interest Test Statement The Multifunctional Platform for Chemical Manufacturing and Energy Materials will underpin the sustainable manufacturing of clean fuels (notably hydrogen and biofuels from water, carbon dioxide and waste biomass), high value chemicals and advanced functional materials. Such technologies have the potential to enhance Australian energy security, and to strengthen and diversify the Australian agricultural, chemical manufacturing and medical sectors through new investment opportunities and associated job and wealth creation. Cleaner routes to renewable transport fuels and chemicals will reduce water and energy consumption, helping to protect and clean-up rural and urban environments and mitigate marine microplastic pollution, while novel polymer nanotechnologies will promote improved antimicrobial treatments and biomedical interventions. The Platform will promote scientific advances by researchers working across chemistry, chemical engineering and materials science through the discovery and optimisation of next-generation energy materials (notably catalysts and sorbents) and macromolecules.								
	RMIT University	975,934.00	0.00	0.00	0.00	0.00	0.00	975,934.00	
Swinburne University of Technology									
LE210100107 Shannon, A/Prof Ryan M	**The next generation fast radio burst detector for Australia** This project intends to provide a next-generation fast radio burst detector for the Australian Square Kilometre Array Pathfinder. The project expects to both transform our understanding of fast radio bursts, enigmatic flashes of radio waves of unknown origin, but also use the bursts as tools to study the cosmic web of matter that resides in intergalactic space. To do so, the project aims to deliver a more sensitive detection system capable of localising a large sample of fast radio bursts to greater distances, found commensal to other observations. This should provide significant benefit, including the resolutions to key open astrophysical questions and improved scientific outcomes for transient searches with the Square Kilometre Array.	672,000.00	0.00	0.00	0.00	0.00	0.00	672,000.00	COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, MAX PLANCK INSTITUTE FOR RADIO ASTRONOMY
	National Interest Test Statement This project provides a cutting edge, next-generation fast radio burst detector for the Australian Square Kilometre Array Pathfinder telescope, consolidating Australia's world leadership in advanced instrumentation for radio astronomy. The detector ensures that the Pathfinder (a CSIRO National Facility instrument available to all researchers) remains a world-leading fast radio burst detection and localisation instrument, and delivers high-impact science by providing a new tool to probe the structure of the Universe and test extreme physics. The detector will maintain Australia's high standing within the international Space Science community and, through its research outcomes, excite the general public and inspire more young Australians to take up careers in science and technology. The project is a national partnership building upon Australia's substantial investment in radio astronomy and will enable further technological development in next-generation radio astronomy instrumentation and high-speed digital signal processing for science and industry.								
	Swinburne University of Technology	672,000.00	0.00	0.00	0.00	0.00	0.00	672,000.00	

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The University of Melbourne									
LE210100001 Mueller, Prof Scott N	**A 3-photon imaging system for deep live imaging** This project aims to establish Australia's first 3-photon microscope system with adaptive optics for deep intravital imaging. This advanced imaging system will enable researchers to investigate the biology of cells and tissue structures in a wide range of organs and engineered tissues, to a degree not possible with existing technology. This project will capitalise on advanced laser, microscope and adaptive optics technologies with the expected outcomes to include the generation of new knowledge of major biological systems, including the immune system and the nervous system. This will provide significant benefits to fundamental interdisciplinary research into immunology, infectious disease, neuroscience, mechanobiology and engineering.	875,000.00	0.00	0.00	0.00	0.00	0.00	875,000.00	GARVAN INSTITUTE OF MEDICAL RESEARCH, THE WALTER AND ELIZA HALL INSTITUTE OF MEDICAL RESEARCH
	National Interest Test Statement Many discoveries in the biological sciences have been underpinned by the use of the microscope to peer into the tissues of living organisms. Currently, microscope technology available to scientists in Australia allows study of the superficial regions of tissues and relies upon very bright fluorescent molecules, preventing deep tissue imaging. With the recent development of 3-photon microscopy, it is now possible to image multiple millimetres into tissues as well as perform label-free imaging of tissues and bio-engineered materials. We propose the establishment of Australia's first 3-photon imaging system in an established in vivo imaging facility. This will benefit multi-disciplinary research in biology, biochemistry, engineering and materials sciences and have economic benefits for the design of novel therapeutics and nano-materials.								
LE210100009 Boskovic, A/Prof Colette	**Magnetometry Facility for Molecular and Nanoscale Materials** Advances in information and communications technology are critically dependent on increasing the capacity, speed and energy efficiency of logic and memory electronic devices. These improvements can be achieved by reducing component size to the nanoscale and using magnetic spin as well as charge. This Project aims to establish Australia's first integrated Magnetometry Facility for determining the magnetic properties of a range of nanoscale materials down to the level of individual nanomagnets. The Facility will provide crucial characterisation capabilities for Australian researchers, building capacity to develop new magnetic nanomaterials and devices for high-density data storage, quantum computing and spintronics.	620,000.00	0.00	0.00	0.00	0.00	0.00	620,000.00	
	National Interest Test Statement This Project aims to deliver a new Magnetometry Facility to support strategic research underpinning development of magnetic nanomaterials and incorporation of these materials into devices for communications and information technology. Applications are anticipated in high-performance materials and energy efficient technologies for high density data storage, quantum computing and spintronics. Australian involvement in the fundamental research will propel local development of electronic devices that exploit these new materials and ensure that Australia benefits from any commercialisation of technologies that emerge. The prospect of improved energy efficiency over present technologies can provide significant environmental and economic benefits. Bringing chemists, physicists and materials engineers together in this interdisciplinary team is the optimal approach for making significant advances, generating the most exciting new materials and having the best chance of achieving real-life applications; as well as providing high quality interdisciplinary research training for the next generation of researchers.								

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(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24* (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)
LE210100013 Thieberger, A/Prof Nicholas	**Nyingarn: a platform for primary sources in Australian Indigenous languages** This project aims to build Nyingarn, an online platform of digital text versions of early Australian Indigenous language manuscripts with images of the original documents. There are over a thousand such documents that are foundational to understanding Australia's languages, and Nyingarn makes textual versions, accessions, and navigates such documents, with a means for adding more in future. Expected outcomes of this project are accessible sources useful for educational materials, and for understanding the local language, its history, and its relationship to other languages. Nyingarn will provide cutting-edge methods for ingesting, analysing, and presenting these historical materials, both for research and for the general public.	200,000.00	200,000.00	200,000.00	0.00	0.00	0.00	600,000.00	NATIONAL LIBRARY OF AUSTRALIA, FIRST LANGUAGES AUSTRALIA LIMITED, STATE LIBRARY OF NEW SOUTH WALES, STATE LIBRARY OF WESTERN AUSTRALIA
	National Interest Test Statement This platform presents the work of early settlers in recording the languages of the local Aboriginal people. It addresses a current gap in access to these early records by providing access to previously inaccessible materials, especially for the Aboriginal people whose languages are presented in those documents. It will provide important information in a form that is openly accessible and able to be searched, providing a research resource that can also be used in classrooms. Classical documents of Europe are available online, but these early classical documents from Australia remain on paper only. In addition to the content of these records, the platform that will be built will help lift Australian humanities research infrastructure to current international standards. While there is established infrastructure to house paper records (in libraries and archives), there is still a research challenge to curating and preserving interpretations of digital records. Research outcomes will include greater knowledge of the nature and diversity of Australian languages, with primary data linked to analysis via Nyingarn.								
LE210100021 Fensham, Prof Rachel S	**Australian Cultural Data Engine for Research, Industry and Government** The project aims to develop an Australian Cultural Data Engine (ACD-Engine), which will be an open software engineering facility that interacts with leading existing cultural databases in architecture, visual and performing arts, humanities, and heritage to build a bridge to information and social sciences. The ACD-Engine will unify and expand these disparate and previously unconnected systems to allow advanced analysis techniques to be performed. It will deliver innovative and searchable formats that ensure interoperability, improved search, interactive design and interpretation aids that will benefit the policy and planning for national and international alignments between researchers, industry and government.	220,000.00	220,000.00	0.00	0.00	0.00	0.00	440,000.00	KING'S COLLEGE LONDON
	National Interest Test Statement The Australian Cultural Data Engine will contribute to the Australian national interest by building a facility for robust, comparative and innovative analysis of the cultural sector. It builds upon rich data assets that exist for sectors including architecture, the visual and performing arts, humanities and heritage, but the project team will improve this data e.g. by mapping demographic, employment, touring and funding, to determine cultural policy, creative and governance outcomes. Its innovative research tools and visualisations will be open source for researchers, government and non-government users, and interface with international cultural frameworks in Europe, the US and UK. Aimed at improving knowledge of the cultural sector, community participation and social resilience, the project will develop new technology outcomes in design, data curation and public engagement, as well as generate a much-needed labour force of flexible, advanced, skilled and diverse data experts identified as a priority by government and high growth technology industries.								

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LE210100044 Phillips, Prof David	**Ultra-precise dating in Earth, planetary and archaeological science** An advanced facility incorporating next generation, multi-collector mass spectrometer and ultra-clean gas line systems, capable of ultra-precise dating of Earth, planetary and archaeological material. This joint Melbourne-Curtin facility seeks to generate ultra-precise age data from ever smaller and younger samples, such as minute particles from space return missions and tiny inclusions in diamonds. The facility is expected to revolutionise noble gas dating techniques, resulting in new knowledge on solar system genesis, hominid evolution, indigenous migrations, palaeo-climate change, natural hazards and ore deposit formation, while further enhancing Australia's international leadership and competitive advantage in the discipline.	905,654.00	0.00	0.00	0.00	0.00	0.00	905,654.00	DEPARTMENT OF MINES, INDUSTRY REGULATION AND SAFETY
	National Interest Test Statement The proposed new facility for ultra-precise dating of Earth, planetary and archaeological material represents a ground-breaking development for Australian researchers, research students, government institutions, industry and the broader community. The data generated will provide exciting new insights into the origin of our solar system, the history of our planet, the evolution of our species, indigenous migration patterns, hazard assessment (e.g. volcanoes eruptions), paleo-climate and paleo-environmental changes, landscape development and the exploration for new ore deposits (e.g. diamonds, gold, critical metals). The facility will form part of national infrastructure programs, thus enhancing national research collaboration between partner universities, government and industry. The facility is critical for the development of a 'dating map' of the Australian crust to support geodynamic modelling and resource exploration, with resulting national economic and social benefits. Finally, the new equipment will significantly enhance Australia's international leadership and competitive advantage in the the field.								
LE210100046 Hinde, Dr Elizabeth H	**A fast fluorescence lifetime imaging microscope to track protein dynamics** This project aims to establish a fast fluorescence lifetime imaging microscope that can track the intracellular journey of a protein throughout the entire structural framework of a living cell. By coupling single particle tracking technology with a cutting-edge fluorescence lifetime camera, this one-of-a-kind microscope will enable protein mobility and interaction to be spatially mapped with unprecedented temporal resolution. The benefit of this technology is that it will enable scientists in Australia to image, for the first time, the biophysical mechanism by which a protein navigates intracellular architecture to regulate a complex biological function at the single molecule level.	289,381.00	0.00	0.00	0.00	0.00	0.00	289,381.00	THE WALTER AND ELIZA HALL INSTITUTE OF MEDICAL RESEARCH
	National Interest Test Statement Microscopy methods that quantify real time protein behaviour in the context of living cells or a multi-cellular biological system are essential for advancing our fundamental understanding of cell biology. Fast fluorescence lifetime imaging can track a protein's journey throughout living cells and spatially map its interaction network with unprecedented temporal resolution. This microscope will benefit the Australian community by enabling biologists to visualise dynamic biological processes linked to the health of cells, their function and behaviour under conditions such as differentiation and cellular response to stress and disease evolution. The information gained will potentially impact on our approaches to areas such as tissue engineering and regenerative processes. This research infrastructure will underpin leading research programs at the University of Melbourne, Monash University, Australian National University and Walter Eliza Hall Institute in the emerging national field of cellular biophysics.								

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LE210100083 Williams, Prof Spencer	**A cutting-edge and high-throughput nuclear magnetic resonance platform** The proposal aims to establish a multi-institutional nuclear magnetic resonance (NMR) platform across two of Victoria's leading research universities. The platform will consist of two state-of-the-art NMR spectrometers equipped with parallel acquisition and variable temperature capabilities. It will renew obsolete equipment and support cutting-edge research in fundamental and applied chemical and materials science across the Victorian region. Expected outcomes include enhanced research capacity and productivity, supporting new interdisciplinary collaborations. Benefits will accrue across the spectrum of the chemical sciences and include environmental monitoring, drug development, process chemistry, and advanced materials manufacturing.	777,493.00	0.00	0.00	0.00	0.00	0.00	777,493.00	
	National Interest Test Statement Advanced nuclear magnetic resonance technology helps unravel the chemical structures of molecules. New chemical processes are critical to industry as they enhance productivity, build new markets, and protect from environmental impacts. The equipment will accelerate the discovery of new chemicals by Australian industry, fostering development of new materials in the drug, agrochemical, food and other specialist materials industries. It will enable the study of natural products and environmental pollutants, deepening our understanding of the environment and supporting its conservation pertinent to the Australian continent. We expect long-term impacts on research competitiveness and intensity, enhancing research capacity and supporting the Australian chemical industry. The requested instrumentation will renew obsolete infrastructure at the host institutions, driving new discoveries and providing state-of-the-art research training for the next generation of Australian research scientists and research leaders into the next decade.								
LE210100098 Taylor, Prof Geoffrey T	**Enabling the Future of the Australian Collider Physics Program** The project aims to fund the continuation of Australia's very successful experimental particle physics program to explore how the universe works at it's fundamental level. We interrogate subatomic matter at the energy frontier at CERN's Large Hadron Collider and the intensity frontier at Japan's SuperKEKB collider. The basic contributions required for Australian membership of these two key programs will enable scientists to continue capitalising on decades of hard work and accumulated expertise, significant project outcomes and benefits include: access for Australia to advanced instruments and international research facilities; training of the next generation of researchers in detector construction and operation; and a rich science program.	987,000.00	987,000.00	0.00	0.00	0.00	0.00	1,974,000.00	EUROPEAN ORGANISATION FOR NUCLEAR RESEARCH, KEK TSUKUBA-SHI, NAGOYA UNIVERSITY, JAPAN, ALBERT LUDWIG UNIVERSITY OF FREIBURG
	National Interest Test Statement Particle physics is a fundamental quest to understand how matter is constructed. Australia has played a significant role in this foundational science, working with international particle accelerator facilities at Europe's CERN and Japan's KEK, building important networks and partnerships. The project places Australian researchers at the forefront of instrumentation development for advanced detector technologies. This will stimulate instrumentation technology, analytics and manufacture in Australia on the back of fundamental science needs. The work aligns with the national Science and Research Priorities, Advanced Manufacturing category, and also provides exceptional training for students in cutting-edge projects. The program will develop broadly applicable skills in big data handling and data-mining, microelectronics, sensor technology and advanced, complex simulation in the next generation of Australian physics graduates. It will provide Australia with technological capabilities through development of human capital in the deepest of international scientific endeavours.								

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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LE210100122 Parker, Prof Michael W	**Hydrogen-deuterium exchange system - a missing link in protein analysis** Proteins are highly dynamic molecules that are essential to life. This project aims to acquire a fully automated and integrated hydrogen-deuterium exchange system, a powerful tool for analysing the motion of proteins and their interactions with other molecules. Expected outcomes include a new capability for biology labs around Australia by (1) increasing success rates of difficult projects that aim to visualise 3D protein structures and (2) providing rapid information about protein interaction sites. Anticipated benefits include the generation of dynamic data that will be highly complementary to static pictures of protein structures. This will enable clever design of new proteins with beneficial uses in the biotechnology industry.	725,000.00	0.00	0.00	0.00	0.00	0.00	725,000.00	COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, ST VINCENT'S INSTITUTE OF MEDICAL RESEARCH, HUDSON INSTITUTE OF MEDICAL RESEARCH, PETER MACCALLUM CANCER CENTRE, THE FLOREY INSTITUTE OF NEUROSCIENCE AND MENTAL HEALTH, THE WALTER AND ELIZA HALL INSTITUTE OF MEDICAL RESEARCH
	National Interest Test Statement This instrument will become an openly accessible resource for the protein science community in Australia with applications in our biotechnology industry. Proteins are one of life's essential building blocks and are the molecular engines that control all functions of an organism, from bacteria and viruses to plants and animals. Proteins are made up of long strings of amino acids which fold into unique three-dimensional structures. It is these structures that determine the function of a protein. However, proteins are not entirely rigid molecules so information about their motions are also critically important for understanding their function. This instrument will provide information on protein motion and details of molecular interactions with other molecules such as genes, antibodies, small molecules, and other proteins. Protein structures can be key drivers in the biotechnology industry so project outcomes may result in new products and new jobs. For example, protein structure has contributed to the development of new insecticides and crops with enhanced nutritional benefits.								
LE210100130 Gooley, Prof Paul R	**New Biomolecular Capabilities for the Melbourne Magnetic Resonance Facility** The project aims to integrate new instrumentation, which does not currently exist in Australia, into the Melbourne Biomolecular Nuclear Magnetic Resonance (NMR) facility. This will introduce new capabilities to the Australian NMR community to characterise important biological molecular interactions at low concentrations. This project expects to support existing areas of research strength with new approaches across interdisciplinary research programs in biochemistry, structural biology, medicinal and natural product chemistry. Expected outcomes from a range of research with a variety of partners will underpin new, potentially commercially valuable, applications across the chemical, pharmaceutical, agricultural or manufacturing industries.	1,000,000.00	0.00	0.00	0.00	0.00	0.00	1,000,000.00	THE WALTER AND ELIZA HALL INSTITUTE OF MEDICAL RESEARCH
	National Interest Test Statement Nuclear magnetic resonance (NMR) spectroscopy underpins basic science across the chemical and biological fields by advancing our fundamental knowledge of the behaviour of molecules. This facility will provide new cutting-edge NMR capabilities accessible to all Australian researchers. It will enable research across a diverse range of topics that have the potential to impact multiple sectors. Whether understanding biomolecular structures for the development of new drugs in the pharmaceutical sector; chemical characterisation to investigate new bioactive molecules and natural products for the chemical industries; or the development of novel biological materials for new devices in the manufacturing sector, this infrastructure has the potential to drive diverse economic, commercial, environmental, and social benefits for all Australians.								

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LE210100151	**Near infrared imaging and spectroscopy facility**	302,154.00	0.00	0.00	0.00	0.00	0.00	302,154.00	
Hutchison, Dr James A	This project will establish a cutting-edge optical microscopy platform using light just beyond our vision, in the near-infrared. Recent developments in near-infrared camera technology have opened up new opportunities for applications in this under-explored spectral region. Expected outcomes include the development of new methods for harvesting near-infrared sunlight and for photocatalysis of solar fuels, new biomimetic coatings for thermal management, new security signatures invisible to the naked eye, new materials for phototherapy, and improved techniques for imaging biological samples. It will benefit Australian renewable energy, security, building, and biomedical industries, and train our next generation of optical science researchers.								
	National Interest Test Statement Australia has made significant investments in large, visible light microscopy platforms that make exceptional contributions in materials and biomedical science. This proposal will expand our national optical microscopy capability by constructing an imaging facility using light just beyond our vision, in the near-infrared. Half the sunlight falling on Earth is in the near-infrared and is not collected by silicon solar cells. This facility will develop new methods for harvesting this untapped energy source. It will also enable study of the structures evolved by insects and birds to absorb or reflect near-infrared sunlight in adaptation to climate, leading to biomimetic applications such as energy efficient coatings and invisible anti-counterfeit devices. Near-infrared light penetrates the human body much more efficiently than visible light and new materials for bioimaging and for generating reactive oxygen species essential to phototherapy are anticipated. These outcomes will stimulate collaboration with the solar energy and building industries, with hospitals, and with defense organisations.								
	The University of Melbourne	6,901,682.00	1,407,000.00	200,000.00	0.00	0.00	0.00	8,508,682.00	
	Victoria	9,214,196.00	1,407,000.00	200,000.00	0.00	0.00	0.00	10,821,196.00	

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

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Western Australia

The University of Western Australia

LE210100035	**Founding an Australian Critical Zone Observatory Network**	1,205,137.00	0.00	0.00	0.00	0.00	0.00	1,205,137.00	
Thompson, A/Prof Sally E	This proposal founds a new network of Australian Critical Zone Observatories. The network will fill essential knowledge gaps about interactions of under- and above-ground environmental processes and their responses to disturbance and change. These interactions determine the sustainability of food, clean water, mineral resources and Australian ecosystems, and cannot be studied with existing environmental infrastructure. The 5 foundational sites will host integrated monitoring equipment to observe stocks and fluxes of carbon, water, energy and mass across the “Critical Zone” – the vertical span from plant canopies to fresh bedrock. Joining a burgeoning international movement, the network will catalyse Critical Zone science in Australia.								

National Interest Test Statement

The environmental challenges confronting Australia’s agricultural lands, water supply catchments, cities and natural ecosystems arise from complex process interactions in a vertical domain extending from the top of plant canopies to deep groundwater and bedrock. No existing observation network in Australia is equipped to monitor the vital cycles of energy, water, carbon and other solutes across this domain. Integrating above-ground observations with below-ground monitoring of soils, root zones, aquifers, and microbiology will enable a step-change improvement in understanding of environmental functioning; essential for avoiding, mitigating and adapting to future challenges. Steered by an expert team, the Critical Zone Observatories will support economically and environmentally valuable outcomes relating to the provision of food, water, mineral resources, and ecosystem health – essential to Australians' quality of life as population grows and climate and land uses change. The first in the Southern Hemisphere, this network will position Australia at the forefront of global Critical Zone science.

LE210100110	**High Resolution Mass Spectrometer for Chemical Characterisation in WA**	474,000.00	0.00	0.00	0.00	0.00	0.00	474,000.00	
Flematti, Dr Gavin R	The aim of this proposal is to establish new high resolution mass spectrometry facilities for Western Australia which will support multiple areas of chemical, materials and environmental science. The proposed platform will address a major need for the separation and characterisation of molecules relevant to synthetic and natural products chemistry, advanced materials and environmental analyses. The facility will support a number of high impact ARC funded research projects in diverse areas, such as plant growth regulation, molecular electronics and environmental contaminants. The new instrumentation will be easy to use, provide advanced high quality data and overall benefit the next generation of researchers in Western Australia.								

National Interest Test Statement

The research that will be supported by this vital infrastructure impacts on national science priority areas of Environmental Change, Advanced Manufacturing, Resources, Energy, Health and Soil and Water. The new mass spectrometry facility will advance our capability to study the molecular structure of new compounds, and enhance our ability to identify unknown species in complex biological and environmental samples. The facility will enable breakthrough discoveries in diverse areas relevant to the nation, including in plant/crop growth regulation, drug/agrichemical design, safeguarding our drinking water and natural environment and even in establishing value-adding new industries in electronics. Ultimately, the many projects that this facility will support will positively impact Australia’s economy.

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LE210100125 Faraone, Prof Lorenzo	**National Facility for Infrared Technologies** This project aims to establish a national facility for infrared (IR) technologies. The facility will include advanced imaging and spectroscopy facilities as well as unique tools for wafer-scale mapping of IR materials and devices. Combined, the facility will enable new diagnostic capabilities of supersonic combustion processes, aid establishment of wavelength agile integrated photonic chips and provide non-destructive quantitative electro-optical characterisation of IR materials and devices. Establishment of these state-of-the-art capabilities across Australia will have clear benefits in fundamental sciences such as astronomy and quantum information as well as key industry branches in defence, aerospace, communications and security.	837,000.00	0.00	0.00	0.00	0.00	0.00	837,000.00	
	National Interest Test Statement The facility will provide state-of-the-art capabilities that are necessary to develop and deliver new infrared technologies and imaging capabilities to Australia. It will significantly reduce research and development costs and enable optimisation efficiency and flexibility for prototyping of infrared sensors and imagers in Australia. The facility will expedite development of key building blocks for secured communications, improved detector efficiencies and new generation of imaging tool that are urgently required to advance the growing defence and space technologies in Australia. Combined, the facility will serve national strategic needs and national science and industry requirements. The requested facility will enhance and support the tailoring and customisation of infrared applications in strategic sciences such astronomy, spaceborne infrared monitoring, and diagnostics, as well as key goverment and industry priority areas focusing on geology and mineral exploration, communications, defence, aerospace, and security.								
LE210100126 Martyniuk, A/Prof Mariusz	**Advanced Maskless Photolitography for Western Australia** This project aims to close an existing gap in micro- & nano-fabrication in Western Australia and provide access to advanced maskless photolithography in support of Australian research flagships of international excellence which include advanced infrared and quantum technologies, semiconductor optoelectronics, chemical engineering, microelectromechanical systems, as well as dark matter and gravitational wave discovery. Notably, the new capability is of utmost importance for five distinct ARC Centres in multidisciplinary areas and will be available to all researchers via the WA Node of Australian National Fabrication Facility in support of high impact scientific research and to maintain strong engagement with industry and Australian economy.	527,638.00	0.00	0.00	0.00	0.00	0.00	527,638.00	
	National Interest Test Statement The equipment will facilitate state-of-the-art fabrication of advanced micro- and nano-scale devices needed for energy generation, optoelectronics, computing, nanoelectronics, communications, advanced sensing, and science in search for novel materials. It will enable development of devices with new functionalities, beyond what is currently available. Particularly strong are the benefits for end-users and industry, including the fast-growing Australian space and defence sectors. The proposed capability will enable Australia to develop and deliver new miniaturised sensors and imaging capabilities for space situation awareness, spaceborne monitoring, satellite-to-satellite and ground-to-satellite optical communications, as well as next generation ultra-fast light-based WiFi, and artificial vision for autonomous systems to see what is currently invisible. Industry ready scientific innovation will be supported while providing excellent training for graduates with skills in advanced manufacturing, quantum science, infrared technologies, and remote sensing.								
	The University of Western Australia	3,043,775.00	0.00	0.00	0.00	0.00	0.00	3,043,775.00	
	Western Australia	3,043,775.00	0.00	0.00	0.00	0.00	0.00	3,043,775.00	
		32,660,812.00	**3,727,000.00**	**1,520,000.00**	**920,000.00**	**0.00**	**0.00**	**38,827,812.00**	

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act