Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
1	Adv Characterisation & Instrumentation	Goh Kuan Eng Johnson	gohj@imre.a-star.edu.sg	Senior Scientist III	Valleytronics: 1. Heterostructure growth and development for transition metal dichalcogenides 2. Dielectric development and characterization 3. Contact engineering for valleytronics 4. Charge/Spin transport investigations 5. Valleytronic device development 6. Single photon generation	To build up the key capabilities for understanding the valley physics in 2D semiconducting materials (2DSMs), including but not limited to transition metal dichalcogenides (TMDCs), with the goal of gaining insights for device designs and applications based on 2DSMs	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
2	Adv Characterisation & Instrumentation	Goh Kuan Eng Johnson	gohj@imre.a-star.edu.sg	Senior Scientist III	Spin-valley Qubits: 1. Quantum materials engineering for qubits 2. High-quality encapsulation for quantum materials 3. Design and fabrication of gated quantum dot devices for qubits 4. Quantum measurements for qubits (DC and RF) 5. Cryogenic electronics for quantum measurements 6. Impact of defects on qubit performance 7. Machine learning for quantum materials characterization 8. Machine learning for qubit optimization	The overall aim is to exploit the spin-valley interplay in 2D materials to achieve a scalable qubit platform.The key objectives are: 1) Use electrostatically gated quantum dots (QDs) to achieve scalable planar design. 2) Use spin-valley or spin-valley-layer coupling in 2D semiconductors to produce robust qubits. 3) Exploit spin-valley-layer coupling to reduce circuit complexity	NUS/NTU/SUTD	
3	Adv Characterisation & Instrumentation	Lin Ming	m-lin@imre.a-star.edu.sg	Senior Scientist I	In-situ TEM sutdy of surface and interface electronic properties of 1D and 2D semiconductor materials	The defects are critical for the application of 2 dimensional crystals in electronic devices. In this project, the thin film device will be fabricated and observed under TEM during electric biasing process. The formation and evolution of defects and crystal reconstruction will be directly revealed at atomic scale, thus controlling the device properties from nanoscale.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
4	Adv Characterisation & Instrumentation	Lin Ming	m-lin@imre.a-star.edu.sg	Senior Scientist I	Synthesis and nanoscale TEM characterization of metal alloys	Nanostructured metal alloys play important role in the electrochemical reactions to convert CO2 into useable hydrocarbon materials. The activity and selectivity depend on the surface structures and composition of alloy particles. In this project, the nature of the alloy compound will be securitized by sub-nm characterization, the change of the surface structures can be revealed ambiguously with in-situ experiments.	NUS/NTU/SUTD	
5	Adv Characterisation & Instrumentation	Pan Jisheng	js-pan@imre.a-star.edu.sg	Senior Scientist III	Thin film growth and in-situ characterization for microelectronic device fabrication	Multilayer thin films with a high-quality interfaces play more and more important role in semiconductor device. The performance of the heterostructure device is determined by two interface parameters: the band discontinuities and the built-in potential since both parameters affect carrier injection or confinement in devices. In this project, we will deposit multilayer thin films and determinate interface parameters by photoemission spectroscopy.	NUS/NTU/SUTD	
6	Adv Characterisation & Instrumentation	Pan Jisheng	js-pan@imre.a-star.edu.sg	Senior Scientist III	Development of metallic coating by cold sprays for aerospace, automotive and corrosion prevention applications	In one principle element alloys, efforts to improve materials' strength such as grain refinement, surface enhancement or alloying usually leads to low ductility. In this project, we tackle this problem by resorting to medium entropy alloys (MEA), which has 3~4 constituent elements and is based on a high entropy alloy concept proposed in 2004. Moreover, an unconventional manufacturing method employing cold spray deposition and subsequent heat treatment will be attempted to further improve both strength and ductility in the MEAs.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
7	Advanced Optical Technologies	Arseniy Kuznetsov	ARSENIY_KUZNETSOV@IMRE.A-STAR.EDU.SG	Principal Scientist I	Active and tunable dielectric nanoantennas and metasurfaces, flat optics, nanoantenna-based devices	Develop active and tunable dielectric nanoantenna devices for applications in micro-LEDs, LiDAR for autonomous vihecles, and future 3D holograpghic displays	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/advanced-optical-technologies
8	Advanced Optical Technologies	Ding Lu	DINGL@IMRE.A-STAR.EDU.SG	Scientist III	Resonant dielelctric metasurface for strong light matter interacion	Explore light matter interaction using resonanct dielectric metasurface.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
9	Advanced Optical Technologies	Krivitskiy Leonid	LEONID_KRIVITSKIY@IMRE.A-STAR.EDU.SG	Senior Scientist III	Quantum physics	Quantum-enhanced metrology with entangled light; solid state quantum systems; integrated quantum devices; quantum-bio interfaces	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
10	Advanced Optical Technologies	Leong Xu Heng Victor	VICTOR_LEONG@IMRE.A-STAR.EDU.SG	Scientist II	Quantum nanophotonics	Quantum optics and nanosensing Optical interfaces with nanomaterials / quantum emitters On-chip photodetectors	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
11	Advanced Optical Technologies	Liang Xinan	LIANG_XINAN@IMRE.A-STAR.EDU.SG	Senior Specialist III	Near Eye Display with Metasurface Hologram	Computer Generated Hologram; Near Eye Display System; Dielectric Metasruface; Accommodatiaon-suppport 3D dsiplay	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
12	Advanced Optical Technologies	Ramon Jose Paniagua Dominguez	RAMON_PANIAGUA@IMRE.A-STAR.EDU.SG	Senior Scientist I	Nano-optics and nanophotonics, metasurfaces and metamaerials	Develoment of tunable metasurfaces for wavefron control. Development of nanoscale light sources based on active nanoantennas and metasurfaces.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
13	Advanced Optical Technologies	Teng Jinghua	jh-teng@imre.a-star.edu.sg	Principal Scientist I	1. 2D Optoelectronics 2. Metasurfaces and metaoptics for sensing and imaging	1. Explore the unique properties of 2D materials and their heterostructures for optoelectronic applications 2. Study and develop metasurfaces and metaoptics for light control and manipulation in UV to IR range for various applications especially in optical sensing and super-resolution imaging	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
14	Advanced Optical Technologies	Teo Ee Jin	TEOEJ@IMRE.A-STAR.EDU.SG	Senior Scientist I	Highly efficient and tunable color converters for agriculture	Development of highly efficient colour converters for agriculture. Student will participate in solution based processes, optics fabrication and design.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
15	Advanced Optical Technologies	Xu Xuewu	XU_XUEWU@IMRE.A-STAR.EDU.SG	Principal Specialist I	Tunable metasurfaces for beam steering and 3D display applications	Programmable solid-state beam steering devices with large field of view: design, fabrication and characterization; High-speed submicron spatial light modulator for 3D holographic displays	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre
16	Advanced Sustainable Materials	Li Zibiao	LIZB@IMRE.A-STAR.EDU.SG	Senior Scientist I	High Performance Green Biocomposites for Circular Economy	Development of biomass based core-shell nanofiller such as cellulose and lignin as reinforcement of green biocomposite from PLA and PHA for high performance application in biodegradable sustainable packaging and automobile components	NUS/NTU/SUTD	https://scholar.google.com/citations?user=gRUvVV4AAAAJ&hl=en
17	Electronic Materials	Albertus Denny Handoko	ADHANDOKO@IMRE.A-STAR.EDU.SG	Scientist II	Advanced catalysis design for flow electro/photo catalysis for CO2 and N2 conversion to valuable chemicals and fuels	The proposed project aim is to combine electrocatalysis with continuous micro flow reactor to enable liquid phase heterogeneous catalytic CO2 or N2 reduction or other reactions to be efficiently performed. The project will utilise LabVIEW based automations to systematically evaluate kinetics and energetics of electrocatalysis reaction and optimise the reaction conditions by help of machine learning (ML) algorithms.	NUS/NTU/SUTD	
18	Electronic Materials	Albertus Denny Handoko	ADHANDOKO@IMRE.A-STAR.EDU.SG	Scientist II	Advanced catalysis design for flow electro/photo catalysis for CO2 and N2 conversion to valuable chemicals and fuels	The proposed project aim is to combine electrocatalysis with continuous micro flow reactor to enable liquid phase heterogeneous catalytic CO2 or N2 reduction or other reactions to be efficiently performed. The project will utilise LabVIEW based automations to systematically evaluate kinetics and energetics of electrocatalysis reaction and optimise the reaction conditions by help of machine learning (ML) algorithms.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
19	Electronic Materials	Chen Shuting	CHENST@IMRE.A-STAR.EDU.SG	Scientist III	Smart materials, particularly ferroelectric and piezoelectric materials for electrical applications. Development of ultrasonic transducers using novel piezoelectric material/structure for non-destructive testing (NDT) applications.	The student will be involved in the development of advanced electronic materials (particularly piezoelectric materials), including polymer, ceramic and composite materials, to achieve superior performance properties. The work also includes the design and fabrication of sensors and transducers based on the developed materials, targeting advanced devices for applications such as structural health monitoring, condition monitoring, and the industrial internet of things (IoT).	NUS/NTU/SUTD	
20	Electronic Materials	Ho Pin	HO_PIN@IMRE.A-STAR.EDU.SG	Scientist II	Brain-inspired spintronics and ferroelectrics devices	Ferromagnetic, ferroelectrics and multiferroic materials and device development for neuromorphic computing applications.	NUS/NTU/SUTD	
21	Electronic Materials	Ho Pin	HO_PIN@IMRE.A-STAR.EDU.SG	Scientist II	Brain-inspired spintronics and ferroelectrics devices	Ferromagnetic, ferroelectrics and multiferroic materials and device development for neuromorphic computing applications.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
22	Electronic Materials	Liu Zhaolin	zl-liu@imre.a-star.edu.sg	Senior Scientist III	Nano-materials for Energy Storage Systems; Nano-structure materials and composite for their applications in batteries	To develop stable silicon/carbon anode with high energy density for next generation Li-ion batteries is one of the most important research topics in battery research. To explore an effective approach to load Si particles between the interior and surface of graphite or carbon has been identified as one of the most promising and effective approaches to enhance the energy density of LIBs. A strategy that integrate a graphite framework with the modified nano/microstructured silicon with boron doping carbon or CNT (B-Si/C or CNT) may be explored. Optimization of the electrolyte formulations for Si anode will also be explored.	NUS/NTU/SUTD	
23	Electronic Materials	Lourembam James	JAMES_LOUREMBAM@IMRE.A-STAR.EDU.SG	Scientist II	New science and emerging applications in spin-orbitronics	To develop mechanisms and film heterostructures where spin properties can be manipulated through interfaces in nanoscale devices.	NUS/NTU/SUTD	
24	Electronic Materials	Lum Yanwei	LUM_YANWEI@IMRE.A-STAR.EDU.SG	Scientist I	(1) Development of high-throughput energy materials synthesis platforms for applications in energy storage and conversion. (2) Machine learning driven electrocatalyst design and electrolyzer system development for carbon dioxide conversion to value-added chemicals and fuels. (3) Organic electrochemistry for synthesis of pharamaceuticals	To develop systems for the highthroughput synthesis and characterization of materials. The applications explored will be in electrocatalysis (CO2 conversion) or photovoltaics (perovskite tandems). We will also develop flow systems for continous manufacturing of pharmaceuticals using organic electrochemistry.	NUS/NTU/SUTD	https://lumyanwei.wixsite.com/electrification

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
25	Electronic Materials	SEH Zhi Wei	SEHZW@IMRE.A-STAR.EDU.SG	Senior Scientist I	Designing advanced materials for next-generation batteries and electrocatalysts	The research focuses on using concepts from materials chemistry and physics to develop new electrode and electrolyte materials for next-generation sodium- and magnesium-ion batteries, as well as new electrocatalyst materials for hydrogen evolution and carbon dioxide reduction	NUS/NTU/SUTD	http://www.zwseh.com
26	Electronic Materials	Soumyanarayanan Anjan	anjan@imre.a-star.edu.sg	Senior Scientist I	Microwave Spectroscopy of Ultrathin Magnetic Films and Spintronic Devices	Use FMR and BLS to characterize GHz resonant modes in multilayer thin films and devices to establish their switching dynamics.	NUS/NTU/SUTD	
27	Electronic Materials	Soumyanarayanan Anjan	anjan@imre.a-star.edu.sg	Senior Scientist I	Microwave Spectroscopy of Ultrathin Magnetic Films and Spintronic Devices	Use FMR and BLS to characterize GHz resonant modes in multilayer thin films and devices to establish their switching dynamics.	NUS/NTU/SUTD	
28	Electronic Materials	Soumyanarayanan Anjan	anjan@imre.a-star.edu.sg	Senior Scientist I	Spectroscopic Imaging of Topological Materials	Use ARPES and STM to characterize band structure and topological properties of Weyl semimetals and 2D magnetic materials for spintronics applicatoins.	NUS/NTU/SUTD	
29	Electronic Materials	Soumyanarayanan Anjan	anjan@imre.a-star.edu.sg	Senior Scientist I	Nanoscale Imaging of Topological Spin Structures	Use device imaging MFM and TEM to characterize multilayer films and devices hosting magnetic skyrmions.	NUS/NTU/SUTD	
30	Electronic Materials	Soumyanarayanan Anjan	anjan@imre.a-star.edu.sg	Senior Scientist I	Nanoscale Imaging of Topological Spin Structures	Use device imaging MFM and TEM to characterize multilayer films and devices hosting magnetic skyrmions.	NUS/NTU/SUTD	
31	Electronic Materials	Tong Shi Wun	TONGSW@IMRE.A-STAR.EDU.SG	Scientist II	Smart panels for sunlight management and energy harvesting	(i) Development in nanostructured materials for stable sunlight management system. (ii) Tailor the electronic and optical properties of the nanostructured materials via surface engineering.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
32	Electronic Materials	Yao Kui	k-yao@imre.a-star.edu.sg	Principal Scientist II	Nano-structured ferroics and device functional mechanisms	Nanoferroics, including ferroelectric, ferroelastic, ferromagnetic and multiferroic nanostructured materials, possess a variety of extraordinary behaviors that make them extremely attractive for multi-functional device applications. Currently the project is focusing on exploration of nano-structured ferroelectrics for realization of new functional mechanisms and/or outstanding piezo-smart related performance. The ferroelectric materials' functions and properties are tailored by manipulating their composition, nanostructure, stress, and geometry. (As an example, refer to our recent publication in Science (369, 292–297, 2020).) For students with strong engineering background and interests, they are encouraged to further demonstrate advanced piezo-MEMS and NEMS (micro- and nano-electromechanical systems) devices using the obtained high performance nano-ferroelectrics.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
33	Electronic Materials	Yao Kui	k-yao@imre.a-star.edu.sg	Principal Scientist II	Energy harvesting by functional materials with structure tailored at nanometer scales	This project aims at exploring energy harvesting mechanisms in functional materials, particularly polar and ferroelectric materials. The structures of these materials are designed and tailored at molecular and nanometer scales to promote efficient generation and transportation of electrical charge carriers for achieving the desired electrical outputs. Multiple energy harvesting mechanisms exist in ferroelectric materials, including bulk photovoltaic, pyroelectric, piezoelectric, and other electromechanical effects, besides the direct electrical energy storage function with their outstanding high dielectric permittivity. Candidates with great enthusiasm about revolutionary energy sources for powering electronics and distributive intelligent systems including IoT for the future are solicited to join us.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
34	Electronic Materials	Yao Kui	k-yao@imre.a-star.edu.sg	Principal Scientist II	Smart materials for advanced sensors and transducers	Electrical polarization or the change in the polarization often occurs in response to many external stimuli in a material, particularly prominent when the structure lacks of a center of symmetry. The polarization-based stimulus-response behaviors in polar ferroelectrics lead to multiple extraordinary signal and energy conversion functions, valuable for producing competitive intelligent sensors and transducers. Combined with machine learning, these advanced sensors and transducers enabled with the polarization-crucial ferroelectric materials and functions are promising for many important fast growing applications in structural health monitoring, non-destructive testing, health care, smart city, and the intelligent manufacturing. The students will have the chance to work in a multidisciplinary team, from smart materials, advanced sensor and transducer devices, to intelligent systems with machine learning, depending on their interests and background.	NUS/NTU/SUTD	
35	Electronic Materials	Yao Kui	k-yao@imre.a-star.edu.sg	Principal Scientist II	Ultrasonic transducers; Battery-less and wireless sensors	With the rapid progresses in computation capability and artificial intelligence, innovations in sensors and the ways of their implementations in the structures are required for radically upgrading various monitoring technologies with distributive intelligence as demanded in smart systems. Our team has proposed integration of ultrasonic transducers made of piezoelectric materials on the structures to be monitored. The feasibility for in-situ detection of various structural defects, including cracks, corrosions, and metallic plastic deformations, are being demonstrated using direct-write transducers and transducer array, in combination with the development of corresponding signal processing algorithm. Energy harvesting and noncontact operation solutions are under development to realize battery-less and wireless sensors as desired by the end users. The students will have the chance to work on high sensitive ultrasonic transducers, light-acoustic interactions, and/or signal transmission and processing algorithms, in collaboration with a multidisciplinary project team, depending on their interests and technical background.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
36	Electronic Materials	Zhang Lei	ZHANGL@IMRE.A-STAR.EDU.SG	Senior Scientist I	Ultrasonic wave propagation and interactions in material media	To investigate ultrasonic wave interactions with material properties, micro-structures and defects.	NUS/NTU/SUTD	
37	Electronic Materials	Zhang Lei	ZHANGL@IMRE.A-STAR.EDU.SG	Senior Scientist I	Ultrasonic sensors and transducers	To develop new electromechanical sensors and transducers.	NUS/NTU/SUTD	
38	Electronic Materials	Zhang Lei	ZHANGL@IMRE.A-STAR.EDU.SG	Senior Scientist I	Defect detection in composites and alloys	To investigate new acoustic and optical nondestructive evaluation methods for defect detection in materials.	NUS/NTU/SUTD	
39	Nanofabrication	Dong Zhaogang	dongz@imre.a-star.edu.sg	Scientist III	Sub 10 nm Fabrication of Optical Nanoantennas with Strong Light-Matter Interactions	We are developing sub 10 nm nanofabrication technologies for fabricating optical nanoantennas with novel designs and physics towards achieving strong light-matter interactions for various applications.	NUS/NTU/SUTD	
40	Nanofabrication	Liu Hong	h-liu@imre.a-star.edu.sg	Senior Scientist I	Large-scale fabrication of nanoantennas using nanoimprint lithography; 3D Printed Miniaturized Structures via Two-Photon Polymerization for advanced light control	Active metasurfaces and metadevices integrated with tunable materials and their applications include wavefront engineering; High refractive index polymer materials development for nanophotonics and 3D micro printing;	NUS/NTU/SUTD	https://research.a-star.edu.sg/researcher/hong-liu/
41	Nanofabrication	Suresh Vignesh	sureshv@imre.a-star.edu.sg	Scientist II	Micro-nano-pattern enabled functional surfaces; Fuctional surfaces for MedTech applications	Nanoplasmonics, sub-100nm patterning, micro-nanostructures, MedTech, optics, photonics, large area fabrication	NUS/NTU/SUTD	
42	Nanofabrication	Wang Qian	WANGQIAN@IMRE.A-STAR.EDU.SG	Scientist III	Controllable manipulation of phonon-polariton at subwavelength scales for mid-infrared photonics applications	Phonon polariton (PhP) confines and guides Mid-IR light at subwavelength scales with lower losses as compared to the plasmonic polariton counterpart. This project aims to study the coupling mechanisms and controllable manipulation of PhP at subwavelength scales and unveiled their powerful potential for applications in mid-IR optoelectronics, bio-imaging and sensing, etc.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
43	Polymer Composite	Fam Wen Hui Derrick	DERRICKFAMWH@IMRE.A-STAR.EDU.SG	Scientist I	Structural Power	To investigate the electrochemical-structural relationship of multifunctional composite materials so as to fabricate a structural power device	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/polymer-composite-department/structural-power
44	Polymer Composite	Liu Songlin	LIUSL@IMRE.A-STAR.EDU.SG	Senior Scientist II	Fabrication of high-throughput and high performance prepreg materials for composite forming	This project develops slurries and sizing technology, manufactures thermoplastic prepregs and composite, and evaluate their performances	NUS/NTU/SUTD	
45	Polymer Composite	Mohit Sharma	SHARMAM@IMRE.A-STAR.EDU.SG	Scientist III	Surface designed hierarchical carbon fiber reinforced composites; fabrication, analysis and wear resistance properties.	Development of wear resistive polymer composites materials which can sustain harsh operating utilities (high temperature≥ 120°C, high pressure ≥ 50 psi, specific wear resistance ≤ 10-15m3/Nm). Nano-structured interphase characterization (advance AFM), nano-mechanical and tribological analyses.	NUS/NTU/SUTD	
46	Polymer Composite	Tay Siok Wei	TAYSW@IMRE.A-STAR.EDU.SG	Senior Scientist I	Accerelated Catalytic Recycling CFRP	To investigate the new method for recycling thermoset and thermoplastic waste and reutilize the product after recycling	NUS/NTU/SUTD	
47	Polymer Composite	Warintorn Thitsartarn	THITSARTARNW@IMRE.A-STAR.EDU.SG	Senior Scientist I	Post-polymerization modification for multi-functional composite	To develop the new technology for thermoplastic modofication in order to change the intrinsic property of thernoplastics.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
48	Soft Materials	Ady Suwardi	ADY_SUWARDI@IMRE.A-STAR.EDU.SG	Scientist I	Brain-inspired vision sensor	Artificial visual sensors have great potential to augment basic human visual systems beyond the visible light region. However, they are made up of complex circuits, which are difficult for device integration and high power consumption. Brain-inspired (neuromorphic) computing, which emulates biological neuron systems, is a highly sought-after solution to these issues. However, optically controlled neuromorphic computing is largely non-existent. Our study sought to find a reliable brain-inspired vision sensor based on photo-ferroelectric effect in self-assembled ferroelectric nano-pillars that can be used not only to process and learn vision signals, but also as information storage.	NUS/NTU/SUTD	https://www.linkedin.com/in/ady-suwardi-5a498156/
49	Soft Materials	Ady Suwardi	ADY_SUWARDI@IMRE.A-STAR.EDU.SG	Scientist I	Upcycling Silicon Waste into Functional Semiconductors for Energy Applications.	As we move into modern technologies era, electronic waste (mainly composed of silicon) have become a pervasive problem. This project aim to not only save the environment by waste scavenging, but also to upcycle and turn them into valuable functional materials (i.e. for thermoelectric cooling, LED, or energy harvesting applications) with an eye towards agricultural technologies and flexible device applications.	NUS/NTU/SUTD	https://www.linkedin.com/in/ady-suwardi-5a498156/
50	Soft Materials	Goh Simin, Shermin	GOHSMS@IMRE.A-STAR.EDU.SG	Scientist I	Chemosensor Arrays for Continuous Monitoring	Development of robust electrochemical chemosensors for continuous monitoring of chemical analytes e.g. for healthcare, food, environmental monitoring	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/about-us/talent-webpage/g/goh-simin-shermin; https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-dynamic-cross-linked-polymers

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
51	Soft Materials	Goh Simin, Shermin	GOHSMS@IMRE.A-STAR.EDU.SG	Scientist I	Dynamic Covalent Polymers	Development of mechanically strong polymers which can be recycled under stimuli through cross-linker exchange as sustainable plastics	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/about-us/talent-webpage/g/goh-simin-shermin; https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-dynamic-cross-linked-polymers
52	Soft Materials	Laura Sutarlie	LAURA-SUTARLIE@IMRE.A-STAR.EDU.SG	Scientist III	Optical nanomaterials-based bacteria sensor	Develop highly sensitive optical nanomaterials-based bacteria sensor to detect bacteria in drinking water and food. Develop signal enhancement methods to achieve highly sensitive signals.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biosensors-and-nanosensors
53	Soft Materials	Lim Yuan Chong Jason	JASON_LIM@IMRE.A-STAR.EDU.SG	Scientist I	Upcycling Waste into Sustainable Polymeric Materials for Biomedical Applications	1. Chemical methods to breakdown plastic waste 2. Designing biomedically-relevant polymeric materials from these plastic waste 3. Sustainable hydrogel design and synthesis	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/sustainable-supramolecular-materials
54	Soft Materials	Su Xiaodi	xd-su@imre.a-star.edu.sg	Senior Scientist III	Nanomaterials-based optical Biosensors	Develop nanomaterials-based biosensors for diagnosis, food safety, environment monitoring, and aquaculture; Project scope include nanoparticle synthesis with tunable optical properties; Nanoparticle bioconjugation and assay development; Field test for sensor validation.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biosensors-and-nanosensors
55	Soft Materials	Xue Kun	XUE_KUN@IMRE.A-STAR.EDU.SG	Scientist II	Thermogelling copolymer micelles for opthalmic applications	Thermogels are formed from association of component micelles. As a followup study to the thermogels, we investigate the effect of these micelles on promising applications in the eye	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
56	Soft Materials	Xue Kun	XUE_KUN@IMRE.A-STAR.EDU.SG	Scientist II	Novel double network copolymer hydrogels	Copolymer based thermogels are reversible and fatigue resistant. Here, we incorporate chemical moieties to the copolymers to generate double network hydrogels with improved properties	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels
57	Soft Materials	Xue Kun	XUE_KUN@IMRE.A-STAR.EDU.SG	Scientist II	Synthesis and characterisation of thermogelling polymers for drug release	Thermogels are a form of in-situ gel-forming polymeric formulation in response to temperature. Thermogel properties can be altered for specific applications via substitution and modification Here, we evaluate the effects of modifications on drug release profile	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels
58	Soft Materials	Yang Le	YANG_LE@IMRE.A-STAR.EDU.SG	Scientist I	Wearable sensors for non-invasive metabolite & physiological analysis	develop electrochemical sensors for a wide range of analytes and biomarkers, including small molecules, ions, large complexes/ macromolecules, etc; develop electrochemiluminescent sensors; targeted at healthcare monitoring and beyond;	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-materials-for-flexible-printed-devices
59	Soft Materials	Yang Le	YANG_LE@IMRE.A-STAR.EDU.SG	Scientist I	Paintable Electronics & Devices	develop solution-processable optoelectronic device fabrication route, towards paintable and DIY electronics kit; develop printable conductive inks; studying device physics and enhancing device architecture; luminescent devices & emissive materials	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-materials-for-flexible-printed-devices
60	Soft Materials	Zheng Xinting	ZHENGXT@IMRE.A-STAR.EDU.SG	Scientist II	1) Wearable biosensors for non-invasive monitoring and analysis of bodily fluids; 2) Biocompatible coatings for metal implants	1) Novel nanomaterials design and synthesis (carbon dots, nanoenzymes), electrochemical or optical sensor development for sweat or ISF analysis 2) Develop biocompatible coatings for 3D printed metal implant parts and their coating strength characterizations, corrosion analysis as well as in vitro testing	NUS/NTU/SUTD	https://www.linkedin.com/in/xinting-zheng-25306696/?originalSubdomain=sg

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
61	Structural Materials	Huang Xiaohu	HUANGXH@IMRE.A-STAR.EDU.SG	Scientist II	Multifunctional ceramic coatings for aerospace and medtech applications	Multifunctional ceramic coatings for aerospace and medtech applications	NUS/NTU/SUTD	
62	Structural Materials	Ke Lin	karen-kl@imre.a-star.edu.sg	Senior Scientist I	Room Temperature Real-Time THz Imaging System	Terahertz (THz) technology is one of emerging technologies that will change our life. Many attractive applications in security, medicine, biology, astronomy, and non−destructive materials testing have been demonstrated. For THz imaging, most of the scanning methods are still based on point to point raster scanning. Imaging with room-temperature array detectors allows for faster and dynamic measurements. In this project, student will work on further performance improvement of existing THz detection technology in terms of sensitive, dynamic range, response time, noise equivalent power etc. Thereafter reconstruct the line array and focal plane arrays and finally demonstrate the room temperature THz focal plane array imaging system for application. Commercial micro-bolometer arrays THz imaging system will be also used for benchmarking.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
63	Structural Materials	Ke Lin	karen-kl@imre.a-star.edu.sg	Senior Scientist I	Organic Hybrid Superwideband THz Emitter and Detector	Organic nonlinear crystals have a great potential in generating terahertz waves due to simpler collinear phase matching conditions and lower pump energy required than inorganic nonlinear optical crystals. Their properties such as refractive index, dispersion, phonon mode and absorption properties are beneficial to the generation of terahertz and other nonlinear optical processes. The research of two organic nonlinear crystals exciting terahertz includes DAST and HMQ-TMS are under extensive research currently. In this proposed research, student will identify the high-quality organic nonlinear crystals, construct the device structure in order to improve the terahertz conversion efficiency and demonstrate the organic THz emitter and detector devices.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
64	Structural Materials	Ke Lin	karen-kl@imre.a-star.edu.sg	Senior Scientist I	Semiconductor THz detector coupled with antenna	Organic nonlinear crystals have a great potential in generating terahertz waves due to simpler collinear phase matching conditions and lower pump energy required than inorganic nonlinear optical crystals. Their properties such as refractive index, dispersion, phonon mode and absorption properties are beneficial to the generation of terahertz and other nonlinear optical processes. The research of two organic nonlinear crystals exciting terahertz includes DAST and HMQ-TMS are under extensive research currently. In this proposed research, student will identify the high-quality organic nonlinear crystals, construct the device structure in order to improve the terahertz conversion efficiency and demonstrate the organic THz emitter and detector devices.	NUS/NTU/SUTD	
65	Structural Materials	Ngo Chun Yong Andrew	NGOCYA@IMRE.A-STAR.EDU.SG	Senior Scientist I	Artificial intelligence and machine learning (AI/ML) assisted infrared thermography (IRT) for structural defect detection and classification	Infrared thermography (IRT) is one of the non-destructive testing (NDT) techniques to detect defects in structures. However, current IRT technique only can detect the defect but cannot classify them into their respective defect types. In this project, we will explore the use of artificial intelligence and machine learning (AI/ML) to differentiate the different type of defects. The results from this project will be very beneficial to the inspection industries.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
66	Structural Materials	Ngo Chun Yong Andrew	NGOCYA@IMRE.A-STAR.EDU.SG	Senior Scientist I	Unmanned aerial vehicle (UAV) assisted active infrared thermography (IRT) for structural defect detection	Unmanned aerial vehicles (UAVs), like drones equipped with sensors, are promising vehicles for inspection at great height and at hard-to-reach places. Active thermography is a relatively new branch of non-destructive inspection technique to detect hidden defects. However, current active thermography setup are bulky, heavy and thus impossible to be mounted on UAVs/drones. This project will look at the optimization of the active thermography setup for integration to the UAVs/drones for effective detection of hidden defects in large engineering structures. The outcome from this work will be very beneficial to the inspection industries.	NUS/NTU/SUTD	
67	Structural Materials	Wang Shijie	sj-wang@imre.a-star.edu.sg	Senior Scientist III	3D printing of ceramic composite materials	Develop 3D printing materials and process for various industry applications	NUS/NTU/SUTD	https://scholar.google.com/citations?user=UjlFtgEAAAAJ&hl=en
68	Structural Materials	Wang Shijie	sj-wang@imre.a-star.edu.sg	Senior Scientist III	High-throughput synthesis and characterization of high-entropy ceramic materials	Develop high-throughput synthesis and characterization technique for discovery of high-entropy ceramic materials with enhanced properties.	NUS/NTU/SUTD	https://scholar.google.com/citations?user=UjlFtgEAAAAJ&hl=en
69	Structural Materials	Wang Shijie	sj-wang@imre.a-star.edu.sg	Senior Scientist III	Surface treatment and coating for 3D printed parts for biomedical application	Develop surface treatment and coating materials and process for 3D printed parts for biomedical application	NUS/NTU/SUTD	https://scholar.google.com/citations?user=UjlFtgEAAAAJ&hl=en

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
70	ACI	Zainul Aabdin	zainul_aabdin@imre.a-star.edu.sg	Scientist II	Arrays of sub-20 nm vertical GaN nanopillars suitable for future 3D devices via templated self-assembly	New, smaller transistors in the shape of nanopillars will form the active part of logic, memory and power devices that will reach the market around four to five years from now. Active research is ongoing to determine the best way to fabricate these 3D nanopillars in a controlled way. The top-down fabrication that is currently used for silicon devices limits their performance due to unavoidable surface damage during plasma etching. The project aims to develop a more robust and sustainable process to controllably fabricate GaN nanopillars using a bottom-up approach, suitable for future generation microelectronic devices.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/advanced-characterization-and-instrumentation/advanced-in-situ-microscopy-(aim)
71	ACI	Zainul Aabdin	zainul_aabdin@imre.a-star.edu.sg	Scientist II	Disruptive Fabrication Process	Project is a part of a larger NRF-CRP-funded collaborative project between NUS, IMRE and IMEC to develop scalable interconnects for future sub-10-nm node microelectronic process technologies. As transistors approach sub-10-nm dimensions, Cu-based interconnects starts failing due to diminishing electrical performance of Cu metal at the nanoscale and other manufacturing challenges associated with Cu. Therefore, the major aim of this project is to find new metals materials that outperform current metal at the nanoscale and to develop processes that enable new scalable interconnect architectures that go beyond the limits of the current dimensional scaling approach using in-situ liquid-and gas-phase TEM.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/advanced-characterization-and-instrumentation/advanced-in-situ-microscopy-(aim)
72	ACI	Wu Wenya	wuwy@imre.a-star.edu.sg	Scientist II	Investigate the nanoscale dynamics of biopolymer/nanocomposite via in-situ TEM	TEM is a powerful tool when it comes to nanoscale characterizations of many materials as well as dynamic process at nanoscale with external stimulis. With the in-situ TEM technique with low electron voltage imaging, this project aims to obtian insights of the nanoscale dynamics, via direct visulization of the chemical/electrochemical reactions at the interface of the biopolymer/nanocomposite material using in-situ TEM platform.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
73	ACI	Daniel Daniel	daniel@imre.a-star.edu.sg	Scientist II	Wetting properties of graphene and monolayer amorphous carbon	Graphene is a single layer of carbon atoms arranged in hexagonal rings, while a monolayer amorphous carbon (MAC) consists not just of six-carbon rings but also 5, 7 and 8-carbon rings. Despite being a single atomic layer, both graphene and MAC have interesting properties and great technological importance. In this project, we will look at the wetting properties of both graphene and MAC, e.g. how they can be used as a diffusion barrier against moisture to prevent corrosion of metals. This will be a collaboration with the Barbaros group in NUS (https://2dmaterials.nus.edu.sg/barbaros/)	NUS/NTU/SUTD	https://2dmaterials.nus.edu.sg/barbaros/ https://www.dandaniel.me/research-1
74	ACI	Xu Jianwei	jw-xu@imre.a-star.edu.sg	Principal Scientist I	Thermoelectrics and devices	This project will be focused on thermoelectric materials preparation, including conducting polymers and alloy-based semiconductors. Thermoelectric devices/modules will be fabricated and their properties and various applications will be studied.	NUS/NTU/SUTD	
75	ACI	Xu Jianwei	jw-xu@imre.a-star.edu.sg	Principal Scientist I	Aggregation-induced moecules and polymers	This project aims to design and synthesize various aggregation-induced emission molecules and polymers. Their applications in the areas of fluorescence sensors, optical electronics, etc., will be investigated.	NUS/NTU/SUTD	
76	ACI	Xu Jianwei	jw-xu@imre.a-star.edu.sg	Principal Scientist I	Electrochromics and devices	This project is to design and synthesize new electrochromic conjugated polymeric materials, their electrochromic devices will be fabricated, and applications for smart windows, anti-counterfeiting systems, etc., will be studied.	NUS/NTU/SUTD	
77	ACI	Xu Jianwei	jw-xu@imre.a-star.edu.sg	Principal Scientist I	Catalyst for conversion of small molecules to useful value-added chemicals and polymers	This project will design and prepare a series of catalysts for effective and efficient conversion of small molecules into useful organic chemical species or polymers.	NUS/NTU/SUTD	

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
78	ELE	Tripathy Sudhiranjan	tripathy-sudhiranjan@imre.a-star.edu.sg	Senior Scientist III	High Voltage Electronics using 4H-SiC epitaxial Wafer Development	The research work is focused on the development of thick 4H-SiC homo-epitaxial layers for high voltage electronics, using high temperature hotwall CVD, and related characterization and tests.	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/electronic-materials-department/wide-bandgap-semiconductors
79	ELE	Tripathy Sudhiranjan	tripathy-sudhiranjan@imre.a-star.edu.sg	Senior Scientist III	200 mm diameter GaN epiwafers for Power/RF/sensor electronics	The research work will be focused on the development of III-Nitride based epitaxial growth on SiC, high-resistive silicon toward RF electronics and Sensors	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/electronic-materials-department/wide-bandgap-semiconductors
80	ELE	Tripathy Sudhiranjan	tripathy-sudhiranjan@imre.a-star.edu.sg	Senior Scientist III	Wide bandgap Emitters and Detectors on large wafer area substrates	The research work will be focused on the development of deep UV Emitters and detectors using ultrawide bandgap materials systems, fabrication and device characterization	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/electronic-materials-department/wide-bandgap-semiconductors
81	ELE	Dharmraj Kotekar Patil	dharmraj_kotekar_patil@imre.a-star.edu.sg	Scientist II	Spin-Valley qubits in few electron quantum dot in two dimensional transition metal dichalcogenides	The main objective of this project is to deterministically define a few electron quantum dot in two-dimensional transition metal dichalcogenides (2D TMDC). Leverage the intrinsic properties offered by 2D TMDCs such as spin-valley interlocking and strong spin-orbit coupling to encode quantum information.	NUS/NTU/SUTD	https://dharamkotekar.wordpress.com/

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
82	SOF	Zheng Xinting	zhengxt@imre.a-star.edu.sg	Scientist II	1) Wearable biosensors for non-invasive monitoring and analysis of bodily fluids; 2) Biocompatible coatings for metal implants	1) Novel nanomaterials design and synthesis (carbon dots, nanoenzymes), electrochemical or optical sensor development for sweat or ISF analysis 2) Develop biocompatible coatings for 3D printed metal implant parts and their coating strength characterizations, corrosion analysis as well as in vitro testing	NUS/NTU	https://www.linkedin.com/in/xinting-zheng-25306696/?originalSubdomain=sg
83	SOF	Ady Suwardi	ady_suwardi@imre.a-star.edu.sg	Scientist I	Brain-inspired vision sensor	Artificial visual sensors have great potential to augment basic human visual systems beyond the visible light region. However, they are made up of complex circuits, which are difficult for device integration and high power consumption. Brain-inspired (neuromorphic) computing, which emulates biological neuron systems, is a highly sought-after solution to these issues. However, optically controlled neuromorphic computing is largely non-existent. Our study sought to find a reliable brain-inspired vision sensor based on photo-ferroelectric effect in self-assembled ferroelectric nano-pillars that can be used not only to process and learn vision signals, but also as information storage.	NUS/NTU/SUTD	https://www.linkedin.com/in/ady-suwardi-5a498156/
84	SOF	Ady Suwardi	ady_suwardi@imre.a-star.edu.sg	Scientist I	Upcycling Silicon Waste into Functional Semiconductors for Energy Applications.	As we move into modern technologies era, electronic waste (mainly composed of silicon) have become a pervasive problem. This project aim to not only save the environment by waste scavenging, but also to upcycle and turn them into valuable functional materials (i.e. for thermoelectric cooling, LED, or energy harvesting applications) with an eye towards agricultural technologies and flexible device applications.	NUS/NTU/SUTD	https://www.linkedin.com/in/ady-suwardi-5a498156/
85	SOF	Goh Simin Shermin	gohsms@imre.a-star.edu.sg	Sceintist I	Chemosensor Arrays for Continuous Monitoring	Development of robust electrochemical chemosensors for continuous monitoring of chemical analytes e.g. for healthcare, food, environmental monitoring	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/about-us/talent-webpage/g/goh-simin-shermin; https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-dynamic-cross-linked-polymers

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
86	SOF	Goh Simin Shermin	gohsms@imre.a-star.edu.sg	Sceintist I	Dynamic Covalent Polymers	Development of mechanically strong polymers which can be recycled under stimuli through cross-linker exchange as sustainable plastics	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/about-us/talent-webpage/g/goh-simin-shermin; https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-dynamic-cross-linked-polymers
87	SOF	Xue Kun	xue_kun@imre.a-star.edu.sg	Scientist II	Thermogelling copolymer micelles for opthalmic applications	Thermogels are formed from association of component micelles. As a followup study to the thermogels, we investigate the effect of these micelles on promising applications in the eye	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels
88	SOF	Xue Kun	xue_kun@imre.a-star.edu.sg	Scientist II	Novel double network copolymer hydrogels	Copolymer based thermogels are reversible and fatigue resistant. Here, we incorporate chemical moieties to the copolymers to generate double network hydrogels with improved properties	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels
89	SOF	Xue Kun	xue_kun@imre.a-star.edu.sg	Scientist II	Synthesis and characterisation of thermogelling polymers for drug release	Thermogels are a form of in-situ gel-forming polymeric formulation in response to temperature. Thermogel properties can be altered for specific applications via substitution and modification Here, we evaluate the effects of modifications on drug release profile	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biomedical-hydrogels
90	SOF	Lim Yuan Chong Jason	jason_lim@imre.a-star.edu.sg	Scientist I	Upcycling Waste into Sustainable Polymeric Materials for Biomedical Applications	1. Chemical methods to breakdown plastic waste 2. Designing biomedically-relevant polymeric materials from these plastic waste 3. Sustainable hydrogel design and synthesis	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/sustainable-supramolecular-materials

Institute of Materials Research and Engineering (IMRE)								
No.	**Department**	**A*STAR Supervisor's Name**	**Email**	**Designation**	**Project Title**	**Project Description**	**Degree Awarded By Upon Graduation**	**Website Link (if any)**
91	SOF	Laura Sutarlie	laura-sutarlie@imre.a-star.edu.sg	Scientist III	Optical nanomaterials-based bacteria sensor	Develop highly sensitive optical nanomaterials-based bacteria sensor to detect bacteria in drinking water and food. Develop signal enhancement methods to achieve highly sensitive signals.	NUS/NTU	https://www.a-star.edu.sg/imre/research-departments/soft-materials/biosensors-and-nanosensors
92	SOF	Yang Le	yang_le@imre.a-star.edu.sg	Scientist I	Wearable sensors for non-invasive metabolite & physiological analysis	develop electrochemical sensors for a wide range of analytes and biomarkers, including small molecules, ions, large complexes/ macromolecules, etc; develop electrochemiluminescent sensors; targeted at healthcare monitoring and beyond;	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-materials-for-flexible-printed-devices
93	SOF	Yang Le	yang_le@imre.a-star.edu.sg	Scientist I	Paintable Electronics & Devices	develop solution-processable optoelectronic device fabrication route, towards paintable and DIY electronics kit; develop printable conductive inks; studying device physics and enhancing device architecture; luminescent devices & emissive materials	NUS/NTU/SUTD	https://www.a-star.edu.sg/imre/research-departments/soft-materials/functional-materials-for-flexible-printed-devices
94	SOF	Wu Jing	wujing@imre.a-star.edu.sg	Scientist I	(1)Thermal transport and thermoelectric properties of low-dimensional nanomaterials. (2) Electronic transport properties of nano materials	(1) Understanding thermal transport in nanoscale regime and optimizing thermal management in electronics; Study thermoelectric transport in 2D materials and improve thermoelectric performance with scattering engineering. Design nano thermoelectric devices for wearable energy harvesting and cooling devices. (2) Understand, design, and measure the electronic transport properties and investigate interactions between electrons and phonons and photons in the low dimensional system.	NUS/NTU/SUTD	https://www.linkedin.com/in/jing-wu-a963a971/