

Annual Report 2020

Financial Reports, Grants and Publications



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IFM Financial Summary 2020

Financial Summary for Period Ended 31 December

2020 Actual

Income		\$
Research Income		15,394,617
Other Income		709,621
Research Allocation/ University Contribution		18,655,719
Total Income		34,759,957

Employment Costs		
Academic Salaries		18,710,065
General Salaries		8,121,919
Other Employment Costs		-240
Contractors		266,921
Total Employment Costs		27,098,665

Non Salary Expenses		
Buildings & Grounds Infrastructure Costs		234,346
Communication/ Advertising, Marketing & Promotions		72,930
Consumables		1,859,907
Depreciation & Amortisation		1,559,047
Equipment - Repairs, Maintenance & Other Costs		1,002,134
Other Costs		1,338,691
Professional, Legal and Consultants		28,512
Staff Recruiting, Training & Other/Library Information Resource Expenses		95,733
Student Expenses		1,272,345
Travel, Catering & Entertainment		197,648
Total Non Salary Expenses		7,661,293

Surplus/(Deficit)		-
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*includes contributions to other universities, IT, project costs, non salary recoverable, fleet management.

IFM Performance 2015-2020

HDR Student Load (Equivalent Full Time, 2015 – 2020)

2015	2016	2017	2018	2019	2020
143.1	143.1	139.3	150.1	158.7	156.9

*Publications (2015 – 2020)

2015	2016	2017	2018	2019	2020
162.3	190.1	212.5	251.5	302.8	316.7

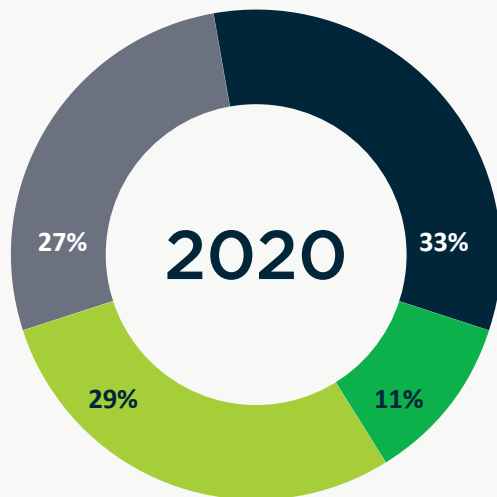
HDR Student Completions (Equivalent Full Time, 2015 – 2020)

2015	2016	2017	2018	2019	2020
30.0	30.	33.0	29.0	38.0	26.0

Grant Applications Awarded in 2020

Grants	Amount Awarded
Reportable – Category 1	\$2,008,557
Reportable – Category 2-4	\$3,363,181
Total	\$5,371,738

Total Grant Portfolio



- Category 1 – 33% (\$5,134,997.16)**
Australian competitive grants R&D
- Category 2 – 11% (\$1,703,869.14)**
Government sector R&D
- Category 3 – 29% (\$4,557,825.94)**
Industry & other R&D
- Category 4 – 27% (\$4,119,207.35)**
Co-operative research centres R&D

Category 1 – Australian competitive grants R&D.

The term used to describe a group of some 70 research grant schemes to which all universities can apply and where awards are based on merit of the application and the research team. The ARC and NHMRC are two of the major funding bodies included in this list.

Category 2 – Government sector R&D Government funding, Federal or State.

From schemes not included in the ACG group and not necessarily determined through a competitive process; it includes contract research and research-related consultancies.

Category 3 includes all research funding from industry, international sources, donations, bequests and foundations, and Higher Degree by Research fee income for domestic and international students.

***CRC (Category 4)** is a university's research income from Cooperative Research Centres excluding their own contribution. Note: CRC income is based on financial year results.

New Grants and Projects

Team	Project title	Years	Industry Partner / Funding Body	Total Awarded (\$AU)
Australian Research Council				
ARC Industrial Transformation Research Hubs				
Prof Ying (Ian) Chen, Prof Colin Barrow, Dr Md Mokhlesur Rahman, Prof David Cahill, A/Prof Wenrong Yang, Dr Srikanth Mateti, Dr Baozhi Yu	ARC Research Hub in New Safe and Reliable Energy Storage and Conversion Technologies	2021-2025	IH200100035	\$5,000,000
Dr Paul Zulli, ...A/Prof Daniel Fabijanic, Dr Anthony Somers	ARC Research Hub for Australian Steel Innovation	2021-2025	IH200100005 led by University of Wollongong	
ARC Future Fellowship				
Dr Dan Liu	Development of novel 2D functionalized nanomaterials	2021-2025	FT200100730	\$791,428
ARC Discovery				
Dr Hao Shao, Prof Tong Lin, Prof Gregory Rutledge, Prof George Chase	High Temperature, Piezoelectric Polymer Membranes	2021-2024	DP210100838	\$277,874
Prof Maria Forsyth, A/Prof Luke O'Dell, Prof Patrick Howlett, Dr Fangfang Chen, Prof Agilio Padua, Prof Michel Armand	Sustainable high energy sodium batteries with enhanced safety & cycle life	2021-2024	DP210101172	\$651,162
A/Prof Jingliang Li	Nano-fibrous structure for high-performance organic photovoltaic thin films	2021-2024	DP210100482	\$340,000
Prof Jenny Pringle, Dr Mega Kar, Prof Douglas MacFarlane	Designing disorder into ionic materials for clean energy applications	2021-2024	DP210101269	\$470,000
ARC Linkage				
Prof Douglas MacFarlane, Prof Jenny Pringle , Dr Mega Kar, Mr Stephen White	Phase Change Materials for Wind and Solar Energy Storage	2020-2023	LP190100522 led by Monash University	\$180,069
ARC Linkage Infrastructure Equipment & Facilities (total awarded)				
Prof Nicolas Voelcker, A/Prof Brant Gibson, Prof Lingxue Kong , Prof Abbas Kouzani, Victor Cadarso, Prof Simon Moulton, Ranjith Rajasekharan Unnithan, Dr Adrian Neild, Prof Peter Kingshott, Dr John Forsythe, Prof Ampalavanapillai Nirmalathas, Peng-Yuan Wang, Dr Lee Djumas, Dr Md Hemayet Uddin	The 3D Nanofabrication Facility	2020-2021	LE190100116 led by Monash University	\$809,000
Prof Maria Forsyth, A/Prof Luke O'Dell	High Performance Solid State NMR spectroscopy for Materials Research	2020-2021	LE200100136 led by University of NSW	\$895,000
Prof Kiet Tieu, Prof Matthew Barnett, Prof Ying (Ian) Chen	An upgraded nanoindenter facility with in-situ Raman at high temperature	2020-2021	LE200100047 led by University of Wollongong	\$245,750
A/Prof Yuerui Lu, A/Prof Weiwei Lei	Advanced Multifunctional Electro-Opto-Magneto-Mechanical Analysing Platform for Micro- and Nano-scale Devices	2020-2021	LE200100032 led by The Australian National University	\$600,000
A/Prof Ross Marceau, Prof Patrick Howlett, Amelia Liu	Next-generation ion-beam facility for ultimate materials characterisation and modification	2020-2021	LE200100132 led by Monash University	\$1,486,000

Team	Project title	Years	Industry Partner / Funding Body	Total Awarded (\$AU)
Other Government Funding				
A/Prof Daniel Fabijanec, Dr Santiago Corujeira Gallo, Prof Matthew Barnett	Improving the Abrasive Wear Resistance of Ground Engaging Tools.	2020-2021	Dept Industry Innovation & Science and Sandvik Mining & Construction	\$99,660
Dr Thomas Dorin, Dr Mahendra Ramajayam	Developing a new high strength / high conductivity alloy for overhead HV conductors.	2020-2021	Dept Industry Innovation & Science and Australian Mines Ltd	\$106,309
Dr Yong Sun, Dr Michael Pereira, Dr Buddhika Abeyrathna, A/Prof Matthias Weiss	Improving performance and quality of sound and fire barriers – Phase 2	2020-2021	Dept Industry Innovation & Science and Speedpanel Holdings Pty Ltd	\$127,952
Dr Johannes Reiner, Prof Bernard Rolfe, Dr Mandy De Souza, Mr Rodney Macaulay, Dr Yanan Wang, Prof Russell Varley	Next Generation Carbon Fibre Reinforced Composite Tray Body.	2021	Department of Industry, Innovation and Science and Duratray International	\$105,543
Dr Omid Zabihi, A/Prof Minoo Naebe	Optimization & Commercialization of Sustainable Fire Retardant Polymer Composite Materials for Construction Applications.	2020-2021	Department of Jobs, Precincts & Regions (Vic) and Demtech (Australia) Pty Ltd	\$100,000
Dr Masihullah Jabarulla Khan, Dr Mohsen Seraji, Prof Russell Varley	Fire Proof Carbon Fibre for Building and Construction Applications.	2020-2021	Department of Jobs, Precincts & Regions (Vic) and Gale Pacific Limited	\$40,000
Dr Shuaifei Zhao, A/Prof Weiwei Lei, A/Prof Jingliang Li	Novel membrane technology for mining wastewater treatment.	2020-2023	Department of Jobs, Precincts & Regions	\$200,000
Dr Alastair MacLeod, Dr Will Gates	Interactions of PFAS and landfill liner components.	2020	Environmental Protection Authority	\$18,182
Cooperative Research Centres				
Prof Maria Forsyth, Prof Patrick Howlett, Dr Robert Kerr, Dr Fangfang Chen, A/Prof Luke O'Dell	Future Electrolyte Systems	2020-2024	Future Battery Industries CRC	\$83,000
Dr Luhua Li, Dr Qi Chao	Boron nitride nanotube reinforced dental ceramic composites.	2021-2022	Innovative Manufacturing CRC Limited	\$299,983
A/Prof Matthias Weiss, Prof Bernard Rolfe, Dr Mariana Paulino	High volume, scalable manufacturing cell for enhanced building products	2020-2021	Innovative Manufacturing CRC Limited	\$206,995
A/Prof Nolene Byrne, A/Prof Tim Hilditch	Hydrogen test bed - plastic pipe network	2020	Future Fuels CRC Ltd	\$525,970
A/Prof Weiwei Lei, Dr Zhiqiang Chen, Dr Christopher Hurren, Dr Dan Liu	New functional composite coating for anti-viral and antibacterial applications	2020-2022	Innovative Manufacturing CRC Ltd	\$503,950
Industry and Other Funding				
Dr Fenghua She, Dr Andrea Merenda, Mr Riyadh AL-Attabi, Prof Lingxue Kong	Characterization of Templated Fabrics.	2020	Gale Pacific Limited	\$11,250
Prof Peter Hodgson	Validation & Design of ECAP Press	2020-2021	Transform Metals Pty Ltd	\$31,000
A/Prof Alessandra Sutti	Swimsuit 2024 - Phase 1	2020	HeiQ Pty Ltd	\$53,888
A/Prof Alessandra Sutti	Durable antiviral textile surface treatment & characterisation	2020	HeiQ Pty Ltd	\$50,000
A/Prof Alessandra Sutti, Dr Surya Subianto, Dr Abhijeet Bapat	Innovation Project	2020	Minor Figures Pty Ltd	\$16,798
A/Prof Alessandra Sutti, Dr Surya Subianto, Mr Amol Patil	Non-woven- Ph1	2020-2021	Varden Process Pty Ltd	\$13,115
Prof Ying (Ian) Chen, Dr Baozhi Yu	BNNT Lithium Sulphur Battery	2020-2022	Li-S Energy Pty Ltd	\$1,272,756
Dr Luhua Li, Dr Qi Chao	Boron nitride nanotube reinforced dental ceramic composites.	2021-2022	3D Dental Technology Pty Ltd	\$105,454
Dr Luhua Li, Prof Matthew Barnett	Boron nitride nanotube reinforced precious metals.	2020-2022	BNNT Precious Metals Limited	\$346,000
Dr Luhua Li	Boron nitride nanotube reinforced resins for ballistic applications.	2020-2021	BNNT Precious Metals Limited	\$27,000
Dr Luhua Li	White Graphene	2021-2022	White Graphene Limited	\$1,443,000
Dr Luhua Li	Research and development on the upscaling of boron nitride nanotube manufacturing facility	2020-2021	BNNT Technology Ltd	\$136,560

Team	Project title	Years	Industry Partner / Funding Body	Total Awarded (\$AU)
Industry and Other Funding				
A/Prof Daniel Fabijanic, A/Prof Tim Hilditch	Literature review - Fatigue behaviour of martensitic steels.	2020	Bradken Pty Ltd	\$10,000
A/Prof Peter Lynch, Dr Pablo Mota Santiago, Dr Claudia Creighton	Next generation fibres program: CARBON FIBRE X-RAY SCATTERING ANALYSIS.	2020-2021	The Boeing Company - USA	\$50,000
A/Prof Peter Lynch, Dr Pavel Cizek, Dr Sitarama Kada	Development of a Microstructural Damage Accumulation Model to Determine the Fatigue Life of Aerospace Materials - Part III	2020-2021	DSTO contract	\$100,000
Dr Hongxia Wang	Fabrication of nanofibre fabrics	2020-2021	DSTG	\$30,000
Dr Wren Greene	EVE-M initiative	2020	Medical Research Future Fund (Cmwlth Standard Grant Agreement)	\$37,400
Dr Jianyu Xiong, Prof Mike Yongjun Tan	Pipeline coating testing and assessment - Diavrosi Protection Pty Ltd	2020-2022	Diavrosi Protection Pty Ltd	\$5,650
Prof Mike Yongjun Tan	Orontide Industrial Services	2020-2022	Orontide Industrial Services t/as Orontide Alphablast Pty Ltd	\$10,900
Dr Maryam Naebe, Mr Md Abdullah Al Faruque	Investigation of contaminations in selected rubber compound samples	2020	Motherson Elastomers Pty Ltd	\$3,360
Prof Jeong Yoon	Generic Project with DAEWOO in the ICIM	2020-2023	Daewoo Industrial Co Ltd	\$60,000
Prof Tiffany Walsh, A/Prof Santu Rana, Prof Svetha Venkatesh	Molecular Modelling and Machine Learning to Optimize the Cellulose Nanocrystal Interface with Water and Polymers	2020-2022	Ford USA Grant - Research	\$287,272
Prof Patrick Howlett, Mr Mojtaba Eftekharnia, Prof Maria Forsyth, Dr Vahide Ghanooni Ahmadabadi, Dr Robert Kerr	Electrochemical Cell Testing and Pouch Cell Prototyping of Sicona Anode Materials.	2020	Sicona Battery Technologies Pty Ltd	\$5,700
Dr Thomas Dorin, Dr Steven Babaniaris	Aluminium Alloy Development for Aeronautical Applications - Stage 2	2020	Universal Alloy Corporation	\$90,000
Dr Thomas Dorin, Dr Lu Jiang	Effect of solution treatment temperature and duration on dispersoids in Al-Cu-Sc-Zr alloys.	2020-2021	Clean TeQ	\$10,237
Dr Hossein Beladi, A/Prof Daniel Fabijanic, Prof Matthew Barnett	Atomic scale analysis of heat treated cold rolled rods.	2020-2021	InfraBuild Construction Solutions Pty Ltd	\$49,000
A/Prof Matthias Weiss, Dr Mariana Paulino	Analysis of Material Behaviour in FormFlow Crash Forming Process.	2020	Formflow Pty Ltd	\$25,114
A/Prof Minoo Naebe	Pitch pre-cursor material technologies for the future development of high-mesophase content carbon fibres.	2020	DSTO Grant - Research - Defence Science & Technology Organisation	\$19,500
A/Prof Minoo Naebe	Carbon Fibre from Alberta Oilsand Asphaltene.	2020-2021	Alberta Innovates	\$50,000 (CAD)
Dr Jinfeng Wang, Prof Xungai Wang, Dr Bin Tang	Commercialisation agreement on recovering grease from scouring wastewater	2020-2023	New Zealand Woolscouring Limited	\$105,000
Dr Alastair MacLeod, Dr Will Gates, Prof Frank Collins	Sydney Opera House - VAPS Loading Dock Project.	2020-2021	Sydney Opera House Trust	\$92,000
Dr Ryan Hess	Rare earth metal production literature review and research recommendations.	2020-2021	Arafura Resources Limited	\$15,000
Dr Pablo Mota Santiago	Development of real time fatigue testing of carbon fibre-based composite materials	2020	The Australian Institute of Nuclear Science and Engineering (AINSE) Early Career Researcher Grant (ECRG)	\$10,000
Dr Shuaifei Zhao, A/Prof Weiwei Lei, A/Prof Jingliang Li	Novel membrane technology for mining wastewater treatment.	2020-2023	Department of Jobs, Precincts & Regions	\$200,000

Publications

Book chapters

1. Dong, H; Corujeira Gallo, S (2020), Plasma surface activation and functionalization of carbon-based materials, in Charitidis CA; Koumoulos EP; Dragatogiannis DA, Carbon-Based Smart Materials, pp. 1-1, Walter de Gruyter.

Journal Articles

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2. Abolhasani, M; Naebe, M; Hassanpour Amiri, M; Shirvanimoghaddam, K; Anwar, S; Michels, J; Asadi, K (2020), Hierarchically structured porous piezoelectric polymer nanofibers for energy harvesting, *Advanced Science*, Vol. 7, NO. 13, Wiley.
3. Acikel, A; Bouazza, A; Gates, W; Singh, R; Rowe, R (2020), A novel transient gravimetric monitoring technique implemented to GCL osmotic suction control, *Geotextiles and geomembranes*, Vol. 48, NO. 6, pp. 755-767, Elsevier.
4. Addinsall, A; Wright, C; Kotsiakos, T; Smith, Z; Cook, T; Andrikopoulos, S; Van Der Poel, C; Stupka, N (2020), Impaired exercise performance is independent of inflammation and cellular stress following genetic reduction or deletion of selenoprotein S, *American Journal of physiology – regulatory integrative and comparative physiology*, Vol. 318, NO. 5, pp. R981-R996, American Physiological Society.
5. Ahmadi, M; Zabihi, O; Jeon, S; Yoonessi, M; Dasari, A; Ramakrishna, S; Naebe, M (2020), 2D transition metal dichalcogenide nanomaterials: advances, opportunities, and challenges in multi-functional polymer nanocomposites, *Journal of materials chemistry A*, Vol. 8, NO. 3, pp. 845-883, Royal Society of Chemistry.
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7. Al Faruque, M; Remadevi, R; Razal, J; Naebe, M (2020), Impact of the wet spinning parameters on the alpaca-based polyacrylonitrile composite fibers: Morphology and enhanced mechanical properties study, *Journal of Applied Polymer Science*, pp. 1-15, Wiley.
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10. Al-Masri, D; Yunis, R; Hollenkamp, A; Doherty, C; Pringle, J (2020), The influence of alkyl chain branching on the properties of pyrrolidinium-based ionic electrolytes, *Physical Chemistry Chemical Physics*, Vol. 22(32), pp. 18102–18113.
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12. Al-Shammary, A; Kouzani, A; Gyasi-Agyei, Y; Gates, W; Rodrigo-Comino, J (2020), Effects of solarisation on soil thermal-physical properties under different soil treatments: a review, *Geoderma*, Vol. 363, pp. 1-17, Elsevier.
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