



ANFF

Australian National Fabrication Facility

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Australian National Fabrication Facility Access and Pricing Policy

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Prepared by Matthew Wright & Chris Gourlay
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Introduction

The Australian National Fabrication Facility (ANFF) provides access to nano and microfabrication facilities to all Australian researchers. The ANFF seeks to encourage collaboration in research. The Access and Pricing Policy is intended to ensure that there are as few barriers as possible to accessing major infrastructure for those undertaking meritorious research.

All Fabrication Nodes will have **Access Committees** charged with overseeing access to the facilities, including implementing the Policy, prioritising use of facilities, and monitoring operating costs and access income.

In the early stage of operations, access to ANFF facilities will be managed by **Facility Managers**, as it is anticipated that Nodes will have excess capacity and that access will be provided on a liberal basis. The full ANFF Access & Pricing Policy will come into operation at the point that each Node is in the position of needing to ration access.

The Policy has been developed to ensure open and transparent access to the facility for all Australian researchers. The Policy will be reviewed by the Nodes on an annual basis to ensure it meets the needs of the growing user base and maximises use of the infrastructure.

Definitions

Facility Manager: the first point of contact at the Node for a new user.

External users: users external to the host institution.

Assisted access: A Node staff member operates the equipment, is in attendance or must remain nearby to monitor operation.

Unassisted access: a user operates the instrumentation without the assistance of a Node staff member. Users must be preauthorised by the Node.

Core time: the working day in which assisted access can be booked.

Access Committee: group responsible for prioritising allocation of instrument bookings.

Oversubscribed: a booking on the instrument required is not available within one month.

Accessing a Node

The Access & Pricing Policy outlines the process for allocating available hours in the event that the facilities are oversubscribed, and the rates for using the facilities under the NCRIS program. Once time has been allocated in the facility, the procedure for all users accessing a Node will be the same, regardless of whether the access is funded by the NCRIS program or otherwise. Users must follow the local Node's policies including OH&S and after-hours access.

Access Committees

Access to ANFF Nodes will be managed by an Access Committee for each Node. The role of the committees is to ensure that the ANFF Access and Pricing policy is implemented at the Node. Typically, the committee at each Node is composed of the Node Director, Facility Manager and representatives from the major user groups. The ANFF CEO may also attend a Node's Access Committee meetings.

It is anticipated that initially the groups will meet at least quarterly. Additional reviews may take place electronically or by sub-committee. The frequency of meetings is driven by the need to advise potential users of the outcome of their application within one month of submission.

Access Committees membership for each Node is given below.

Application Procedures

It is expected that the first contact with a potential user will be a discussion to determine the feasibility of the project. This will establish the techniques required and enable the user to submit a detailed application.

Initial contact for new users may be:

- direct application to a Node's Facility Manager (telephone / email); or
- via ANFF (website, email, telephone). ANFF will then contact the relevant Node or Nodes to determine availability of instrumentation.

Following initial discussions, the formal application process for accessing the instrumentation will be to complete a short project proposal (less than two pages) describing the work and the expected outcomes. Users will be asked to note any factors influencing the timing of the work, e.g., international travel, commercial production implications or grant / thesis submission dates.

In the first instance, the Facility Manager will review the application, in consultation with the Node Director, if necessary, to allocate a booking. In the event that the instrument is oversubscribed, the Facility Manager will submit the application to the Access Committee for review. Copies of all applications will be lodged with the committee.

Criteria for identifying successful applicants.

When demand for the facility exceeds capacity, access committees will review applications on a regular basis. Priority will be given to meritorious research from the following three groups and the committees will work to balance their needs:

- Early career researchers;
- Other public sector researchers of merit; and
- Researchers from SMEs who are able to pay commercial prices for access.

Meritorious research will include, but is not limited to, those awarded nationally competitive grants. The committee will not duplicate existing review processes. It is anticipated that up to 50% of the NCRIS allocation will be prioritised for commercial users. Spare capacity at a Node may be used to meet overflow in other Nodes.

Each application will be considered by the committee based on the following criteria:

- the suitability of the techniques and facilities available at the Node to contribute to the research outcomes sought;
- the potential outcomes of the research, including knowledge and wealth creation via collaborations, papers, and patents;
- significance and innovation of the program;
- commercial urgency or research submission deadlines;
- travel arrangements for interstate or international users; and
- experience of the applicant in the use of the facility and the requirement for technical support.

Reporting

Users are asked to acknowledge the program in papers as follows:

"This work was performed in part at the [insert name] Node of the Australian National Fabrication Facility. A company established under the National Collaborative Research Infrastructure Strategy to provide nano and microfabrication facilities for Australia's researchers."

The ANFF logo (available from the website) should be included on the acknowledgements slide of a presentation. In addition, users funded by travel grants will need to meet the requirements of the grant.

The Access Committee will report the number and type of users and the access income to the ANFF on a quarterly basis. These metrics will form part of the Node's key performance indicators.

Pricing structure

The ANFF recognises three classes of user:

1. PhD students;
2. publicly funded researchers, including University researchers; and
3. industry users.

Pricing for public sector researchers is based on marginal costs only. A full listing of costs for each Node, including consumables, is given in below.

International researchers will be charged at industry rates.

All prices in this document are exclusive of GST.

Conditions of access

Instrumentation funded by the NCRIS program will be available to external users at the ANFF rate for 50% of the core time or as detailed below:

- Access to the Direct Write Lithography at the Sydney Nanoscience Hub will be up to 16 hours per week.
- University of Queensland: A maximum of five hours may be booked in one core period.

Grievances

In the first instance, grievances should be reported to the Node Director for discussion at the Node's Access Committee meeting. In the event that a resolution is not reached, the grievance should be reported to the ANFF.

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Membership of Access Committees

The ANFF CEO may attend access committee meetings at each Node. The committees may also be augmented by other local experts.

VIC

- Prof Nicolas Voelcker
- Dr Sean Langelier (MCN)
- Prof Paul Pigram (LaTrobe)
- Dr Peter Miller (Monash)
- Prof Arnan Mitchell (RMIT)
- Prof Sally McArthur (Swinburne)
- Prof Joselito Razal (Deakin)
- Prof Ray Dagastine (UMelb)
- Dr Cathy Foley (CSIRO)

ACT & WA (combined committee)

- Prof. Jim Williams, Chair (ACT)
- Prof. Hoe Tan, Node Director, ANU Electronic Materials Engineering (ACT)
- Dr Kaushal Vora, Interim Node Facility Manager (ACT)
- Prof. Rob Elliman, ANU Electronic Materials Engineering (ACT)
- Prof. Laurie Faraone, Node Director (WA)
- Res/Prof. Mariusz Martyniuk, Node Facility Manager (WA)
- Prof. Tim Senden, ANU Applied Mathematics (ACT)
- A/Prof. Duk-Yong Choi, ANU Laser Physics Centre & CUDOS (ACT)
- A/Prof. Larry Lu, ANU College of Engineering & Computer Science (ACT)
- Prof. Dragomir Neshev, ANU Non-linear Physics Centre (ACT)

QLD

- Prof Justin Cooper-White (Node Director)
- Prof Paul Burn (Deputy Director)
- Prof Nam-Trung Nguyen (Deputy Director)
- Prof Andrew Whittaker
- Mr Anthony Christian (Facility Manager)
- Mr Glenn Walker
- Ms Anita Gibson (Business Development Officer)

NSW

- Prof Andrew Dzurak (Director)
- Dr Nadia Court
- Mr Gordon Bates (Laboratory Manager)
- Prof Darren Bagnall
- Prof Justin Gooding (UNSW - Chemistry)
- Prof Chee Yee Kwok (UNSW - Electrical Engineering and Telecommunications)
- Prof Nigel Lovell (UNSW - Biomedical Engineering)
- A/Prof Adam Micolich (UNSW - Physics)
- Prof Andrea Morello (UNSW - Electrical Engineering and Telecommunications)
- Prof David Reilly (University of Sydney - Physics)
- Prof Michelle Simmons (UNSW - Physics)
- Prof Richard Tilley (UNSW - Electron Microscope Unit - NCRIS Characterisation Capability)
- Prof Nagarajan Valanoor (UNSW - Materials Science and Engineering)
- Dr Bram Hoex (UNSW - Photovoltaics and Renewable Energy Engineering)

SA

- Dr Craig Priest, Node Director (UniSA)
- A/Prof Benjamin Thierry (UniSA)
- Prof Joe Shapter (Flinders Uni)
- Prof John Arkwright (Flinders Uni)
- A/Prof Said Al-Sarawi (Adelaide Uni)
- Dr Marta Krasowska (UniSA)
- Mr Igor Switala (DST Group)
- Mr Simon Doe, Facility Manager (UniSA)

OptoFab

- A/Prof Michael Withford (MQ, Chair)
- Ben Johnston (MQ)
- Martin Ams (MQ)
- Simon Fleming (USYD)
- David O'Connor (BFI)
- Richard Lwin (USYD)
- Heike Ebendorff-Heidepriem (UoA)
- Luis Lima-Marques (UoA)
- David Reilly (USyd)

Materials

- Prof Gordon Wallace (Node Director)
- Prof Peter Innis (Facility Manager - UoW, IPRI)
- Prof David Officer (UoW)
- Prof Paul Dastoor (UoN)

Pricing Structure

The pricing structure for the facility is given below. Note that standard consumables are included in cost price; however, specialised consumables or retooling will be charged to the user at cost. For further details, refer to the Node.

Charges are subject to annual review and may be changed without notice.

Victorian Node

ANFF-VIC: MELBOURNE CENTRE FOR NANOFABRICATION (MCN)

FLAGSHIP EQUIPMENT		
	Academic/public funded	Industry
Vistec Electron Beam Lithography**	\$92 / hour (\$766 cap per 24hrs)	\$230 / hour (\$1916 cap per 24hrs)
UV Lithography (excluding chrome mask)	\$41 / hour (\$328 cap per 24hrs)	\$102 / hour (\$816 cap per 24hrs)
Seki Diamond Deposition Systems	\$72 / hour (\$792 cap per 24hrs)	\$174 / hour (\$1914 cap per 24hrs)
Nanofrazor: Thermal Scanning Probe Lithography**	\$72 / hour (\$792 cap per 24hrs)	\$174 / hour (\$1914 cap per 24hrs)

Tier 1 Equipment (Sorted by capability area)		
	Academic/Public funded	Industry
PRICING	\$72 / hour	\$174 / hour
Characterisation	Atomic Force Microscope (Bruker Dimension Icon)	
	Bio Atomic Force Microscope (JPK Nanowizard II)	
	FEG-SEM (FEI NovaNano SEM 430)	
	FIB-SEM (FEI Helios Nanolab600 Dual Beam FIB-SEM)	
Etching	Etcher 1 (Oxford DRIE – Bosch)	
	Etcher 2 (Oxford RIE – General)	
Lithography	Mask Aligners (SUSS MA6 and EVG6200)	
	Nano Imprint System (EVG 520 IS)	
Thin Film Deposition	ALD Systems (Cambridge Nanotech ALD FijiF200 & Savannah S100)	
	Electron Beam Evaporator (Intlvac Nanochrome II e-beam) **	
	Furnace Stack Tube #4 (Silicon Nitride LPCVD)	
	Furnace Stack Tube #1 & #2 (Phosphorus/Boron Bubbler Doping)	
	Gold Electroplating (Digital Matrix PMT-16)	
	Nickel Electroplating (Digital Matrix SA1000)	

	PECVD (Oxford Plasmalab 100 PECVD)
	Polymer Glovebox (Mbraun MB200)
	Sputter Systems (Intlvac Nanochrome & Anatech Hummer BC-20) **
	Thermal Evaporator (Angstrom Engineering EvoVac)**

Tier 2 Equipment (Sorted by capability area)		
PRICING	Academic/Public funded	Industry
	\$46 / hour	\$118 / hour
Bio Capabilities	Glovebox (Biolab)	
	3D Printer (Objet Eden 260V)**	
Characterisation	Hyperspectral Imaging (Cytoviva Hyperspectral Imaging System)	
	Laser Doppler Vibrometers (Polytec MSA-400 & UHF-120)	
	Laser Scanning Confocal Microscope (Nikon Instrument A1Rsi+Ti-E)	
	Microspectrometer (Nikon Instrument with Ti-U and Princeton Lightfield)	
	Near-field scanning optical microscope (NeaSNOM)	
	Optical Profilometer (Bruker Contour GT-I)	
	Spectroscopic Ellipsometer (J.A.Woolam M-2000DI)	
	Tabletop SEM (Hitachi TM3030 SEM with Oxford EDX)	
	TIRF System (Nikon Instrument TIRF with Ti-U)	
Etcher	Anodic HF Etcher	
Packaging	Dicing Saw (DiscoDAD321)**	
	Scriber/Breaker (Dynatex DTX)	
	Wire Bonders (K&S 4524 and 4526, F&S Bondtec 5832 and Westbond 7476E)	
Thin Film Deposition	Hitech Oxidation Furnace (\$250 Academic / \$625 Industry caps/run)	
	Furnace Stack Tube #1 & 2 (Phosphorus/Boron solid source Doping)	
	Furnace Stack Tube #3 (general purpose)	

Tier 3 Equipment (Sorted by capability area)		
PRICING	Academic/Public funded	Industry
	\$31 / hour	\$77 / hour
Bio Capabilities	Microarray Spotter (Nanoprint TM LM60)	
	Zeta Potential (Anton Parr SurPASS)	
	Zetasizer (Malvern Zeta Sizer Nano)	
Characterisation	3D Scanner	
	DSA Mass Spectrometer (Perkin Elmer DSA-TOF)	
	Four-point probe station (Signatone WL- 1160)	
	MALDI imaging (Bruker Ultra-flexxtreme MALDI)	
	Mapping Stage Filmetrics System	
	Pull tester (Bose ElectroForce 3200)	
Etching	Metal wet etch bath tool	
	Plasma Asher	
	HF Etch Station	
	Fumehood for Piranha Etch	
Lithography	Flood Exposure Unit (ABM UV Flood Light Source)	
	Dual Track Robotic spin/bake/developer	
	Automated spin developer**	
	Robotic wet bench and IPA dryer	
Rapid Prototyping	CNC Milling	
	3D Printer (Autodesk Ember)**	
Thin Film Deposition	Cr Sputter Coating (Quorum Q300TT)	

Tier 4 Equipment (Sorted by capability area)		
PRICING	Academic/Public funded	Industry
	\$20 / hour	\$50 / hour
Lithography	Fumehood for Photo-Litho Processing**	
	Spinner SUSS 6-inch wafer**	
	Spinner/Hotplate SUSS Delta 90**	
Characterisation	Profiler Stylus Ambios	
	Spectrometer UV/VIS Agilent Tech. Cary	
	UV-VIS Spectrophotometer (Agilent Cary 60)	
General Lab Equipment	HG Programmable Hotplate	
	UV/Ozone Cleaner Samco UV	
	PC for EBL Data Preparation	
Laboratories	General laboratories	
	PC2 Laboratory (10k annual recoveries cap per supervisor)	
	PDMS Laboratory	

** Denotes that linked consumables surcharges may apply

Please note that the academic/public funded rate is only available to Australian academics. Users from academic institutions outside of Australia will be subject to industry prices.

OTHER CHARGES		
	Academic/Public Funded	Industry
MCN Staff Assistance	\$49 / hour	\$123 / hour
General Residency (by arrangement) <i>*See details below</i>	\$510 / month	\$1275 / month
Full Access Residency (by arrangement) <i>*See details below</i>	\$2040 / month	\$5100 / month

General Residency includes allocation of dedicated desk and laboratory space at MCN and access to all tier 3 equipment and laboratory use. It does NOT include use of any tier 2, tier 1 or flagship equipment. All residencies must be for a minimum of 3 months at each interval and paid in advance.

Full Access Residency includes general residency plus access to all Tier 1-3 Equipment. It does NOT include use of any Flagship equipment. All residencies must be for a minimum of 3 months at each interval and paid in advance.

Note(s): Dedicated laboratory space allocation is subject to availability. Limited private office space is available for Full Access Residency clients at a 10% premium (minimum of 12-month commitment required)

Table 1. Linked consumables charges associated with certain MCN equipment.

LINKED CONSUMABLES CHARGES	
PVD precious metals (Au, Ag, Pt, Pd)	Market rate per \$/nm (see staff or ACLS for details)
Photoresist (per sample)	AZ series (\$7), SU8 series (\$12)
Standard EBL resist (per sample)	PMMA/MMA (\$3/piece; \$6 per 4" wafer; \$13 per 6" wafer)
Specialty EBL resist (per ml)	ZEP (\$50), HSQ (\$18); see staff for purchase
Nanofrazor TSPL resist (per ml)	PPA (\$113); see staff for purchase
Objet 3D printer (per hr)	FullCure 720 (\$30/hr); MED 610 (\$45/hr);

Variations to published access rates MCN reserves the right to periodically modify tier pricing from those listed in this policy. In these instances, and for a defined period of time, an updated pricing schedule will be advertised with advanced notice (e.g., seasonal sale).

ANFF-VIC: BIOINTERFACE FACILITY (SWINBURNE)

DESCRIPTION	ACADEMIC/PUBLIC FUNDED	INDUSTRY
Ellipsometer, Mask Aligner, QCM#	\$90 / hour	\$225 / hour
Plasma Generator, Langmuir Blodgett, Dip Coater	\$40 / hour	\$100 / hour
Biointerface Staff Assistance	\$60 / hour	\$150 / hour

#QCM consumables note

ANFF-VIC: CENTRE FOR MATERIALS & SURFACE SCIENCE (LA TROBE)

La Trobe Flagship Equipment (Sorted by capability area)		
PRICING	Academic/Public funded	Industry
		\$150 / hour
Surface Analysis	Time-of-flight SIMS (IONTOF ToF-SIMS 5 DSR/EDR/GCIS)	
	X-ray Photoelectron Spectroscopy (Kratos AXIS Ultra and Nova)	
	Scanning Auger Nanoprobe (PHI 710 Auger Nanoprobe)	

La Trobe Tier 1 Equipment (Sorted by capability area)		
PRICING	Academic/Public funded	Industry
		\$50 / hour
Surface Analysis	Scanning Probe Microscopy (Asylum Research MFP-3D-SA and BIO)	
	SEM (Zeiss Leo 1455)	
Characterisation	Contact Angle Meter (DataPhysics OCA20)	

La Trobe Other Instruments and Charges		
	Academic/Public funded	Industry
X-ray μ CT (Xradia XCT200)	\$250 / hour (\$1200 cap >5 hours)	Quote on request
La Trobe Staff Assistance	\$60 / hour	Quote on request

ANFF-VIC: GENERAL POLICIES

All training requests are conducted at the sum cost of ANFF-Vic staff assistance plus the relevant tool costs.

All job requests for independent completion by a process are conducted at the sum cost of staff assistance plus the relevant tool costs.

Small volumes of basic consumables are included in the price for major and minor equipment; however, large volumes or specialised consumables (e.g. substrate materials) will be at full cost to the user and must be arranged with a process engineer. Any retooling will be charged to the user at cost.

In addition to all other induction, operational health and safety and training requirements, researchers who wish to gain unassisted status must complete (and be assessed for competency against) application-specific training provided by the ANFF-Vic process engineers.

Discounts are available at MCN or the Bio-interface Facility through setup of non-refundable pre-paid accounts for instrument utilisation. Discounts do not apply to residencies, consumables or staff assistance.

PRE-PAID PURCHASE	DISCOUNTS TO BE APPLIED
\$2,000 pre-paid account	15% discount
\$5,000 pre-paid account	20% discount
\$10,000 pre-paid account	25% discount
\$25,000 pre-paid account	30% discount

ACT Node

Pricing structure for ACT Flagship instruments.

	PhD	Publicly funded	Industry
All NCRIS supported units (except FIB)			
Unassisted	\$50 / hr	\$50 / hr	\$150 / hr
Assisted	\$100 / hr	\$100 / hr	\$250 / hr
FIB			
Unassisted	\$60 / hr	\$60 / hr	\$150 / hr
Assisted	\$110 / hr	\$110 / hr	\$250 / hr

Pricing structure for other ACT instruments.

	PhD	Publicly funded	Industry
Sputter only			
Unassisted	\$40 / hr	\$40 / hr	\$150 / hr
Assisted	\$90 / hr	\$90 / hr	\$250 / hr
Small processing tools Barrel Etcher, Ellipsometer, Flip-chip Bonder, Rapid Thermal Annealer, Surface Profiler & Thermal Evaporator			
Unassisted	\$20 / hr	\$20 / hr	\$150 / hr
Assisted	\$70 / hr	\$70 / hr	\$250 / hr
General assistance	\$50 / hr	\$50 / hr	\$100 / hr
General Consumables Wafers, sample boxes, etc	At cost	At cost	At cost
Precious metals			
Gold (Au) Platinum (Pt)	\$1 per nm	\$1 per nm	\$1 per nm
Paladium (Pd)	\$0.5 per nm	\$0.5 per nm	\$0.5 per nm

WA Node

Facility	Access type	PhD student, University or other publicly funded researcher		Industry user
ANFF-WA	unassisted		\$50	\$250
	assisted		\$100	\$300

Alternatively, an annual rate for unlimited hours access can be negotiated on a case-by-case basis. This is based on the level of facility usage along the following indicative figures.

Annual subscription indicative pricing structure (\$/year) for unlimited hours use of WACSOM facilities via the ANFF-WA initiative.

Facility	Access type	PhD student, University or other publicly funded researcher		Industry user
ANFF-WA			\$5,000	\$15,000
	minimal use		\$10,000	\$30,000
	minor use major		\$30,000	\$90,000
	use intensive use		\$50,000	\$150,000

Queensland Node

Category	Type	Rate	AUD
Publicly funded research. For example: NHMRC Project Grants, ARC Discovery Grants, State Grants	Standard access rate	per hour	\$25
	Assisted access rate±	per hour	\$80
Publicly funded research with industry contribution. For example: NHMRC Development Grants, ARC Linkage Grants	Standard access rate	per hour	\$25
	Assisted access rate±	per hour	\$80
Research contracts. For example: Industry funded contract research	Australian client without assistance±(access only)	per hour	\$61
	Australian client with assistance±	per hour	\$167
	International client with assistance (access only)	per hour	\$182
	International client with assistance±	per hour	\$288
Contract services. For example: Single assays, characterisation, one-off jobs	Australian client with assistance±	per hour	\$288
	International client with assistance±	per hour	\$409

± Assisted access rates are charged when ANFF-Q personnel perform the work with you or on your behalf. Training is charged at standard facility access rates.

As of 1st January 2022, ANFF-Q has revised the standard facility access rate for Australian publicly funded researchers from \$55.00 p/hr (ex gst) to \$25.00 p/hr (ex gst). We hope this price change will be welcome news to current users and encouraging for users new to ANFF-Q Facility and its resources.

ANFF-Q have also removed the ANFF-Q annual membership tier-model, effective 31st December 2021.

Current ANFF-Q clients with an existing membership will have their hours balance from 31st December 2021 converted to an account credit.

ANFF-Q general pricing policies

- ANFF-Q Public Research-funded hourly Facility access rate is \$25.00 ex gst, effective 1st January 2022.
- ANFF-Q Staff-Assistance hourly rate is \$80.00 (\$25.00 + \$55.00) ex gst, effective 1st January 2022.
 - Assistance and specialist help from ANFF-Q Staff is available to users with their Facility usage. (Staff-Assistance rates are when ANFF-Q personnel perform the work for you or on your behalf).
 - ANFF-Q Staff-Assistance rates do not apply to new ANFF-Q User training sessions. New users are only charged for the instrument time. ANFF-Q Staff-Assistance involving unsupervised instrument running time (e.g., an 8-hour run on the Nanoscribe) will only charge Users for the “active” Assistance time from ANFF-Q Staff with the instrument. All other time will be charged at the standard facility access rate.
- ANFF-Q Industry hourly Facility access rate is \$61.00 ex gst, and Industry-Assistance rate is \$167.00 (\$61.00 + \$106.00) ex gst, effective 1st January 2022.
- All ANFF-Q Users must nominate a Supervisor for the ANFF-Q Booking System, for account management and billing.

- Supervisor Accounts will receive a monthly statement for their users' charges.
 - Supervisor Account queries should be directed to ANFF-Q Admin (anff@uq.edu.au)
 - Prepayments are available for Supervisor Accounts through ANFF-Q Admin.
5. ANFF-Q request that all Public Research-funded Users acknowledge the Queensland node of the Australian National Fabrication Facility in their academic publications. A \$200 account credit will be applied for each publication that acknowledges ANFF-Q. (Account credit applied to Users' Supervisor's account.)
 6. The ANFF-Q Pricing Policy will be reviewed and updated annually in December.

3D printers at ANFF-Q

ANFF-Q operate several 3D printers including the Konica Minolta Figure 4 and ProJet MJP 2500, Ultimaker 2 Extended+, and a FormLabs Form 3. ANFF-Q's 3D printers can be accessed through ANFF-Q Staff. Please contact ANFF-Q to arrange a custom quote for any 3D printing work.

Other Costs

Other costs that are not included in the hourly rates are ANFF-Q Consumables (charged at cost + 10%), any legal fees (if required), and GST if applicable.

NSW Node

Access for all tools and services will be at the rates (\$/hr):

	PhD	Publicly funded	Industry ¹
ANFF-funded Tools	\$50 / hr	\$50 / hr	\$250 / hr
MBE Tools	\$50 / hr	\$50 / hr	\$250 / hr
XL30 and Sirion EBL Tools	\$50 / hr	\$50 / hr	\$250 / hr
Other In-kind tools	\$50 / hr ¹	\$50 / hr ²	\$250 / hr
ANFF Staff assistance	\$50 / hr	\$50 / hr	\$150 / hr

¹Quoted rates apply to R&D work. Any work which cannot be classified as R&D will be charged at commercial rates as agreed with the ANFF-NSW Node Director.

SA Node

UniSA

Training

All training shall be at a flat rate of \$100 per item of equipment (eg SEM) or process (eg lithography)

Labour

Students and Publicly Funded Researchers	\$80
Industry	\$170

Equipment Use

Unassisted Use	Tier 1	Tier 2
Students and Publicly Funded Researchers	\$15	\$60
Industry	\$40	\$120

Assisted Use	Tier 1	Tier 2
Students and Publicly Funded Researchers	\$95	\$140
Industry	\$210	\$290

Tier 1: Characterisation equipment

Tier 2: Fabrication equipment

Notes:

- Unassisted use capped at \$3600 per user per calendar year
- DRI etcher levy of %50 per day plus \$1/micron etching
- AFM \$30/hr capped at \$3600 per calendar year
- Nano/MicroXCT Scanning: \$40 per hour (up to 8 consecutive hours per session per instrument) then \$10 per hour (each consecutive hour over 8 hours per session per instrument)
- CNC Micro Mill: Unassisted \$60/h (up to 8 consecutive hours) then \$30 per hour (each consecutive hour)

Flinders

Training

Training will be charged at \$60 per hour and is in addition to instrument hourly usage charges. Costing for training sessions longer than 4 hours are made on a case by case basis.

Access Costs

Instruments	Students and Publicly Funded Researchers (Unassisted use)	Industry
Tip Enhanced Raman Spectrometer (TERS) Confocal Raman Microscope Profilometer	\$20 per hour	Assisted use: \$230 per hour Unassisted use: \$170 per hour
Glove Boxes	\$40 per session (4 hours)	
Tube Furnace	\$20 per hour	
Electrospinner	\$20 first hour, \$10 per hour thereafter	
Tensile Testing Stage	\$10 per hour	
Metastable Induced Electron Spectroscopy (MIES)	\$50 per hour	

Services	Students and Publicly Funded Researchers	Industry
Medical Devices and Prototyping Facility	\$65 per hour	\$230 per hour
ANFF Staff Assistance	\$60 per hour	

Supplementary Notes

- Unassisted use is only available to persons who have completed the required training programme. Assisted use will be charged at the ANFF Staff Assistance rate in addition to the instrument rate.
- Access subscriptions can be arranged for long term projects.
- Hourly rates cover basic costs and small volumes of standard consumables. However, larger volumes or specialised consumables shall be charged at cost.
- Unassisted use is only available to persons who have completed the required training programme.

OptoFab Node

University of Sydney fibre facilities

Please refer to the pricing tabled under the NSW node section above.

<https://www.sydney.edu.au/content/dam/corporate/documents/research/facilities/rpf-costs-012020.pdf>

Macquarie University

The Macquarie facilities in the table below are now based on *half day (4 hour blocks)*. Equivalent hourly rates may be negotiated where appropriate.

	PhD	Publicly funded	Industry
Precision laser fabrication * Micromachining or photonic inscription facilities (per system basis). * Chaperoned access only.	\$400 / 4 hr	\$400 / 4 hr	\$800 / 4 hr
Photonic characterisation facilities* Competent trained user	\$25 / 4 hr	\$25 / 4 hr	\$50 / 4 hr
CVD Facility* By Arrangement with James Downes	\$120 / 4 hr (\$30 / hr) Capped at \$2000 / quarter	\$120 / 4 hr (\$30 / hr) Capped at \$2000 / quarter	\$60 / hr Capped at \$4000 / quarter
Design / Preparation / Characterisation ANFF Staff / Assisted	\$60/hr	\$60/hr	\$120 / hr

*Materials costs may be added if sourced/supplied by the facility. Custom tooling/jigging may also require for some jobs, and users may be required to cover workshop costs for custom fixtures.

The Macquarie Facilities in the table below are available on *6-month subscription fee for unassisted use after training*. Hourly rates may be negotiated for small assisted access projects where appropriate.

	PhD Subscription	Publicly funded	Industry
Chameleon laser facility	\$250 / 6 mth	\$250 / 6 mth	\$100 / hr
Ball Milling Facility** unassisted	\$250 / 6 mth	\$250 / 6 mth	\$60 / hr
Sample preparation/Microscopy – unassisted	\$250 / 6 mth	\$250 / 6 mth	\$60 / hr
JEOL Cross-section Polisher and Bench SEM – unassisted	\$300 / 6 mth	\$300 / 6 mth	\$60 / hr
JEOL Cross-section Polisher and Bench SEM – ANFF staff assisted	\$300 / 6 mth	\$300 / 6 mth	\$120 / hr
JEOL CP shield plate - one-off expense may apply for frequent users	\$1000	\$1200	\$1200
FESEM and Kleindiek - unassisted	\$60 / hr	\$60 / hr	Please enquire
FESEM and Kleindiek – ANFF staff assisted	\$900 / 6 mth	\$900 / 6 mth	Please enquire

**Milling balls may be additional for specific projects or frequent users.

The FESEM and Nano Assembly facility is housed at Macquarie Microscopy and is available on a subscription basis after training, or at an hourly rate for assisted users.

Enquires: Ben

Johnston

benjamin.johnston@mq.edu.au

University of Adelaide

Fabrication services:

Given the diversity of requests for specific products (glass, preform, fibre) of differing materials and structures, we will provide individual quotes for each specific request. These quotes will be based on the anticipated requirement for operator time, equipment, custom tooling and consumables. For the operator time, the labour costs in the table below apply.

	PhD	Publicly funded	Industry
Fabrication services	\$75 / hr	\$75 / hr	\$200 / hr

Pricing structure for access to the EIF funded SNOM Housed at Adelaide Microscopy.

	PhD	Publicly funded	Industry
SNOM* - unassisted	\$100 / hr	\$100 / hr	\$260 / hr
SNOM* - ANFF staff assisted	\$150 / hr	\$150 / hr	\$350 / hr
SNOM* - training	\$150 / hr	\$150 / hr	\$150 / hr

*Please note that a \$30 charge will apply per tip.

Enquires: Luis Lima-Marques

luis.lima-marques@adelaide.edu.au

Australian National University – Precision Optics

Price listing TBC. Please make enquires with Prof. Stephen Madden.

stephen.madden@anu.edu.au

University of Technology Sydney

Access Fees – Hourly rates

	Academic host/external	Industry	Staff member assistance – Academic user ^(b)	Staff member assistance – Industry user (b)
Diamond CVD	\$30	\$60	\$90	\$120
Reactive Ion Etching	\$60	\$120	\$90	\$120
Cathodoluminescence ^(a)	\$60	\$120	\$120	\$180

1. minimum usage 2 hrs.
2. Estimate training on Diamond and RIE ~ 2 hrs. 1 hr training + certification; 1 additional hour first use with staff member

Access subscriptions can be arranged for long term projects.

Consultancy To be negotiated independently, costing of any consultancy is to follow UTS's costing/overhead structure.

Material Supply to be negotiated independently to follow UTS's institutional costing/overhead structure.

Tool availability:

Diamond CVD – 80% (4 full days/week)

Cathodoluminescence – on request. Preference to external users.

Reactive Ion Etching – 20% (1 full day/week) **Enquires:**

Prof. Igor Aharonovich igor.aharonovich@uts.edu.au

Materials Node

University of Wollongong

Pricing structure for NCRIS-supported equipment or staff time, excluding consumables.

	PhD	Publicly funded	Industry
All UoW NCRIS supported units	\$66 / hr	\$66 / hr	\$275 / hr

Access subscriptions can be arranged for long term projects.

Consultancy To be negotiated by each Node partner independently, costing of any consultancy is to follow each Node member's institutional costing/overhead structure.

Material Supply & Device Supply Node members to provide a quotation as required utilising each Node member's institutional costing/overhead structure.

University of Newcastle

Pricing structure for single use

	PhD	Publicly funded	Industry
All NCRIS supported units – unassisted	\$50 / hr	\$50 / hr	\$240 / hr
All NCRIS supported units – ANFF staff assisted	\$100 / hr	\$100 / hr	\$290 / hr
Training	\$100 / hr	\$100 / hr	\$290 / hr
Collaboration	\$30 / hr	\$30 / hr	N/A
Subscription to all NCRIS supported units			
20 hours 60% discount	\$400	\$400	\$1920
50 hours 65% discount	\$875	\$875	\$4200
100 hours 70% discount	\$1500	\$1500	\$7200
500 hours 75% discount	\$6250	\$6250	\$30000
Unlimited	\$10000	\$10000	\$48000

Access Type Detail

Unassisted User has been trained and is able to operate equipment independently.

Assisted User requires a staff member to run the equipment for them. This includes samples being sent to us and characterised. Time taken completing analysis reports is also included in this rate.

Training User is trained in the correct operation of the equipment by a staff member. The user can then run the equipment unassisted.

Collaboration Staff member has some scientific input into the work. They will be a co-author on any publications arising from the work.

Quotes All single use access will be quoted in advance but only charged based on actual usage.

Other Charges A **training** fee of \$50/hour will apply for subscriptions per piece of equipment. For example it usually takes 3 hours to be trained on the Cypher AFM, so a \$150 fee would be charged on top of the subscription. This training can be for multiple users at the same time.