Lunchtime Site Tours

Tour	Description
Macquarie University Prof Volz lab	The Low-Temperature Cavity QED lab at CSIRO Lindfield is part of the Macquarie University Quantum Materials and Applications (QMAPP) Group headed by Professor Thomas Volz. The QMAPP team investigates light-matter interactions in the solid state and explores different material platforms for their potential in quantum technologies. In particular, the team at CSIRO works with different semiconductor nanostructurs, such as GaAs quantum wells coupled to fibre cavities and cuprous oxide micropillars. The group has access to a range of cryogenic platforms including a state-of-the art optical dilution fridge and a number of high-power laser systems.
Lindfield Collaboration Hub	The Lindfield Collaboration Hub is an innovation incubator, providing support to both early stage start-ups and established SMEs in their journey to craft cutting-edge high-tech products and devices. Whether in the early stages of development or an established entity, businesses have the opportunity to embed themselves at our Lindfield site. Within these walls, they gain unparalleled access to state-of-the-art facilities, profound scientific expertise, invaluable experience, expansive business networks, and the acumen needed for effective commercialisation.
CSIRO GraphAIR membrane project	Graphene is a revolutionary carbon material that is one atom thick and will find application in many areas. We have invented a form of graphene, Graph Air, that is uniquely suited to filtering compounds from water through membrane distillation. Graph Air is showing resistance to the biofouling that plagues current technologies, while delivering a higher flux than polymer membranes in the same application.
CSIRO Battery Systems	CSIRO electric machine and battery system team have extensive experience developing and prototyping energy storage solutions (e.g., lithium-ion batteries and superconductors) for various applications. In the past, we have developed novel high-power/energy solutions for train/tram, bus, and industrial stationary energy storage.
CSIRO Nano Fabrication Cleanroom	Take a tour of CSIRO's newest cleanroom taking shape at Lindfield with a wide range of materials deposition and characterisation equipment.

CSIRO Superconducting Quantum Sensors & THz Comms	CSIRO's Terahertz communications research will be on show - including a very high bandwidth demo of 6G+ technology. The team is also exploring terahertz spectroscopy and fabricating graphene to produce tuneable terahertz electronics. More recently, Andrew has begun working on leveraging intriguing properties of graphene and other 2D materials for quantum devices.
NMI Nano Metrology	NMI's Nanometrology Section provides accurate and reproducible measurements for nanotechnology. We operate two scanning probe microscopy laboratories, one housing our metrological SPM which provides traceability to the national standard for length through advanced interferometry and is aimed at high-end calibration services and one laboratory with an off-the-shelf AFM, which is easily available for routine measurements and client services. We also run a particle characterisation facility, where we use a range of different instruments and techniques to measure particles, from the nano to microscale. Come and check out our activities in person and have a chat to our experienced staff about any questions you may have regarding measurements on the nanoscale!
NMI Josephson Lab	Josephson voltage standards (JVSs) utilize the accuracy of the Josephson effect to produce voltages that are calculable from first principles. JVSs provide a primary realization of the volt, the unit of electromotive force. The lab tour will showcase the state-of-the art JVS of the National Measurement Institute, its applications, and the latest developments in JVS technology.
Movandi	Movandi is a venture-backed startup innovating in 5G mmWave RF chipsets and phased-array antenna modules. With a strong and growing IP portfolio, including 90 patents filed and 60 patents issued, Movandi RF Semiconductors aims to power a wide range of 5G industry applications, from global operators to 5G private networks. These applications encompass infrastructure, smart repeaters, fixed wireless access, private networks, and mobile vehicles. Our vision is to transform how the world lives, works, and plays by enabling 5G and beyond networks and applications
CSIRO Energy	The Biogeochemistry and Microbiology Team in CSIRO Energy in Lindfield focuses on research related to environmental issues related to gas industry, natural hydrogen resource and hydrogen underground storage, including three laboratories such as chemistry lab, microbiology lab and XRD lab. The chemistry lab tour will showcase the analytical instruments (gas chromatography based) we use for chemical compound analysis (liquid and gas) and isotope analysis and highlight the safety features of a gas heavily used lab.