



UNIVERSITY OF
NEWCASTLE

RESEARCH GROUP FOR DEFENCE INNOVATION (DEFINN)

Commitment to Excellence

The Research Group for Defence Innovation (DEFINN) brings together a multi-disciplinary team from across UON to help resolve technical and sustainment challenges of the Australian Defence Force (ADF) and its 23 allied counterparts. The Group has expertise, infrastructure and innovative technology platforms spanning across a wide range of Defence Priorities.

R&D AGENDA AND PARTNERSHIP

DEFINN delivers innovative low-cost technologies through strategic partnerships with Defence industry and various branches of ADF. With input from the key stakeholders, the research strengths of DEFINN have been classified into thematic areas of:

- Hypersonic research
- Directed energy weapons
- Deployable solutions for power generation and energy storage
- Advanced materials
- Capabilities / technologies that underpin ADF's operation and sustainment

PROVEN IMPACT

Recent and/or ongoing projects with UK-DoD; US-DoHS; NSW-DIN

- Heat Paint for anti-armour guided weapon target practice
- Mobile hydrogen energy storage system
- Concrete-based seal technology for underground bunkers
- GREACH glass breaching device for police and special forces*
- Robo-Laser for remediation of marine corrosion
- Melipon airgun projectile crowd control
- Heat Hide thermal camouflage material
- Robo-Hunter directed energy system for counter robotic missions
- Advanced polymer nanocomposite coating for management of marine fouling, corrosion, and acoustic signature in submarines
- A novel thrust-on-demand system for throttling of solid fuels in rocket motors
- Tactical atmospheric water generators

ARMY INNOVATION DAY 2024

DEFINN showcased two of its new innovations at the Australian Army Innovation Day 2024 in Melbourne. These were Robo-Hunter man-portable directed energy (laser) system for counter robotic missions and the Heat Hide thermal camouflage fabric to make personnel and equipment invisible to infrared detection.

ROBO HUNTER

TACTICAL MAN-PORTABLE KILL LASER

CAPABILITIES:
ANTI-UNMANNED AERIAL VEHICLES CLASS 1 (BOTH ROBOTIC AUTONOMOUS AERIAL SYSTEMS AND REMOTELY PILOTED PLATFORMS)
ANTI UNCREWED GROUND VEHICLES
MINE FIELD CLEARING
MOBILE AND FIXED COMMUNICATION SYSTEMS DISRUPTION (E.G. CCTV CAMERAS, SIGNAL TRANSMISSION ANTENNAS)

FEATURES:
CAN BE OPERATED BY A 2-MAN TEAM, COMPACT AND EASY ASSEMBLING, REMOTE CONTROL SYSTEM, BATTERY POWERED, RUGGED CASING, ZOOMING CAPABILITY, CAN REACH TARGETS AT 300 m

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HEAT HIDE

TACTICAL AERO SHADE **TAS**

WATERPROOF POLYESTER THERMAL CAMOUFLAGE PASSIVE HEAT DISSIPATION DESIGN LIGHT & EASY TO WEAR DIFFERENT COLOUR & PATTERN SIZE: 200X125CM

TACTICAL PROTECTION



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