

Quantum metrology, sensing and imaging

Next generation game-changing technology: DST is undertaking research and experimentation in quantum technologies to provide much improved capabilities in timing, sensing and measurements, and imaging.

Objectives

Through partnerships with industry, academia and government research agencies, DST seeks to leverage the vibrant quantum science, technology and innovation capability across Australia to develop technology solutions of relevance to Defence. The research is aimed at:

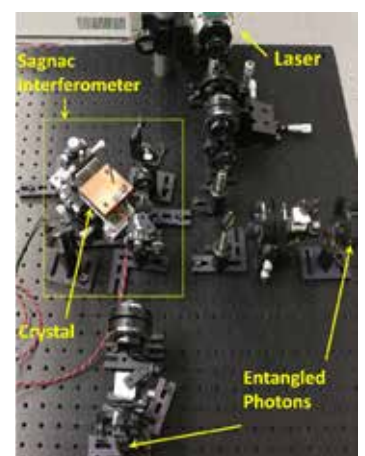
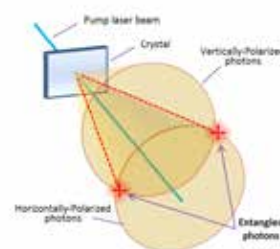
- Understanding the potential of quantum technologies
- Informing Defence of possible benefits and practical limitations of the technologies
- Creating prototype systems and demonstrating the practical application of quantum technologies to Defence problems.

Initial quantum sensing research directions

- Quantum sensing – enhanced navigation, detection of magnetic, electric structures; chemical detection for identification of materials such as explosives and biological agents
- Quantum imaging – quantum radar/ladar for significant increases in resolution, noise performance and countermeasure resistance; detection and imaging using single photon detection technologies
- Quantum clocks and systems – ultra-accurate timing and synchronisation maintained over periods of days to weeks; accurate clocks with low size, weight and power; step-change improvement in navigation, imaging, object detection, EW and communications.

Partnering opportunities

Quantum technologies is a priority theme of the Next Generation Technologies Fund, aimed at realising the potential game changing capabilities afforded by developments in quantum science. DST is interested in developing strong collaborative partnerships with academia and industry in all defence-related aspects of quantum technologies.



For more information contact:
PartnerWithDST@dst.defence.gov.au

