



**UNSW**  
SYDNEY



## Optical Towed-Array Sonars

**The security of coastlines can be greatly enhanced using sonar arrays including those towed by autonomous marine drones. This technology produces low-cost, robust, lightweight and power-efficient towed-array sonars based on optical sensing technologies developed in collaboration with industry partners.**

### Competitive advantage

- There is a trend towards the use of marine drones to supplement crewed vessels. Central to the viability of this is the development of towed-array sonars suitable for such autonomous drones.
- Patented optical technology based on liquid-crystal transducers has been developed with industry partners. Liquid-crystal transducers translate analogue electrical signals into optical signals passively and linearly
- It is possible to read optically the output of virtually any sensor (e.g. microphone or hydrophone) and transmit its output over optical fibre, leveraging the advantages of optical networks
- This technology is cheap, robust, lightweight and very power efficient

### Impact

- Better coastal security
- Successful applications
- Solutions for:
  - The mining industry, Ampcontrol
  - Ocean monitoring, Thales
  - Industrial monitoring, Schneider Electric

### Capabilities and facilities

- UNSW has world class fabrication and characterization facilities related to integrated optics and photonics
- Access to the world-class Australian National Fabrication Facilities (ANFF)

### Our partners

- Thales Underwater Systems
- Zedelef Pty Limited

### More Information

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