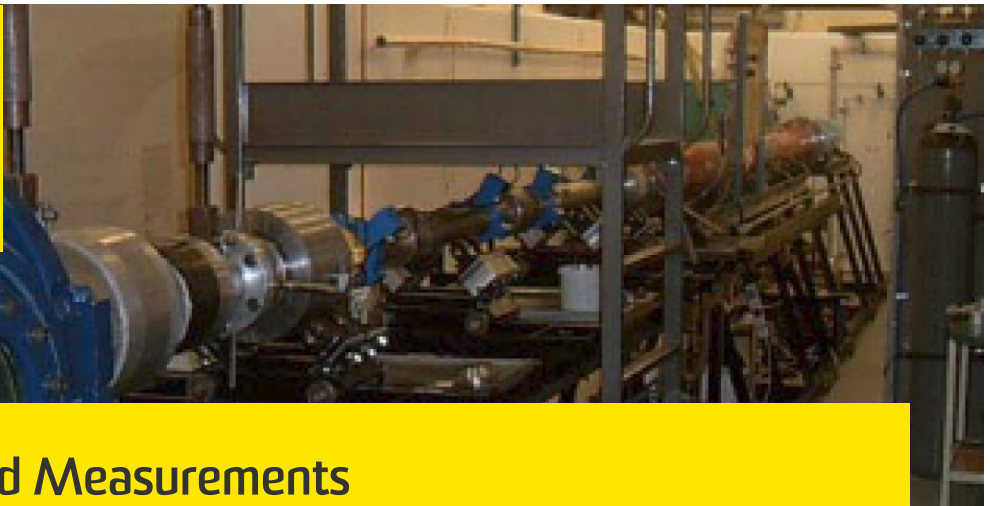




**UNSW**  
SYDNEY



## Hypersonic Flowfield Measurements

### World leading laser flow diagnostics.

#### Competitive advantage

- Unique combination of state-of-the-art shock tunnel for generating hypersonic flows and laser-based diagnostics for making precision measurements in those flows
- Wide range of laser-based measurement technologies, including laser-induced fluorescence diode laser absorption spectroscopy and resonantly-enhanced shearing interferometry

#### Impact

- Design of more efficient hypersonic vehicles
- Improved understanding of aerothermodynamic heating and drag characteristics of hypersonic vehicles
- Testing validity of computational models

#### Successful applications

- Produced the world's first two-dimensional velocity maps in hypersonic separated flows
- Density measurements 100 times more sensitive than existing technologies
- Fastest scanning temperature measurement technology currently in existence (1.6 million temperature measurements per second)
- International collaboration in comparison of state-of-the-art computational methods
- Multiple funding streams including US Air Force programs

#### Capabilities and facilities

- T-ADFA free-piston shock tunnel
- YAG-pumped dye laser system
- Diode laser absorption spectroscopy system

### More Information

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