

A Fuel System developed to increase the energy density and lower the ionisation threshold for hydrogen and hydrocarbon fuel in high speed air breathing engines such as scramjets.

The Technology

The development of scramjet technologies has suffered from the need to improve reliability and reduce requirements for ignition speeds and minimum operating temperatures. Current fuel systems used for the development of scramjets and other high speed engines require high temperature conditions to ignite and generate a thrust. Research at UNSW's Australian Defence Force Academy has developed a fuel system that both lowers the threshold temperature for spontaneous ignition of the fuel and reduces the energy required for ionization of the fuel improving artificial ignition techniques.

Key Benefits

- Reduces the temperature of spontaneous combustion
- Improves artificial ignition techniques by lowering the ionisation threshold
- Reduces the minimum ignition requirements for the engine
- Additionally acts to cool the exterior of the engine/vehicle in hypersonic conditions

Applications

- Scramjet engine development.
- Other high speed aircraft where engine ignition is unstable or lower ignition temperatures desirable



Commercial Opportunity

This technology is available as an Easy Access licence to companies and individuals and is one of our associated scramjet capability portfolio of technologies. Other scramjet technologies also include an advanced fuel additive system, also available under our Easy Access IP program, and a hypersonic air speed sensor.

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