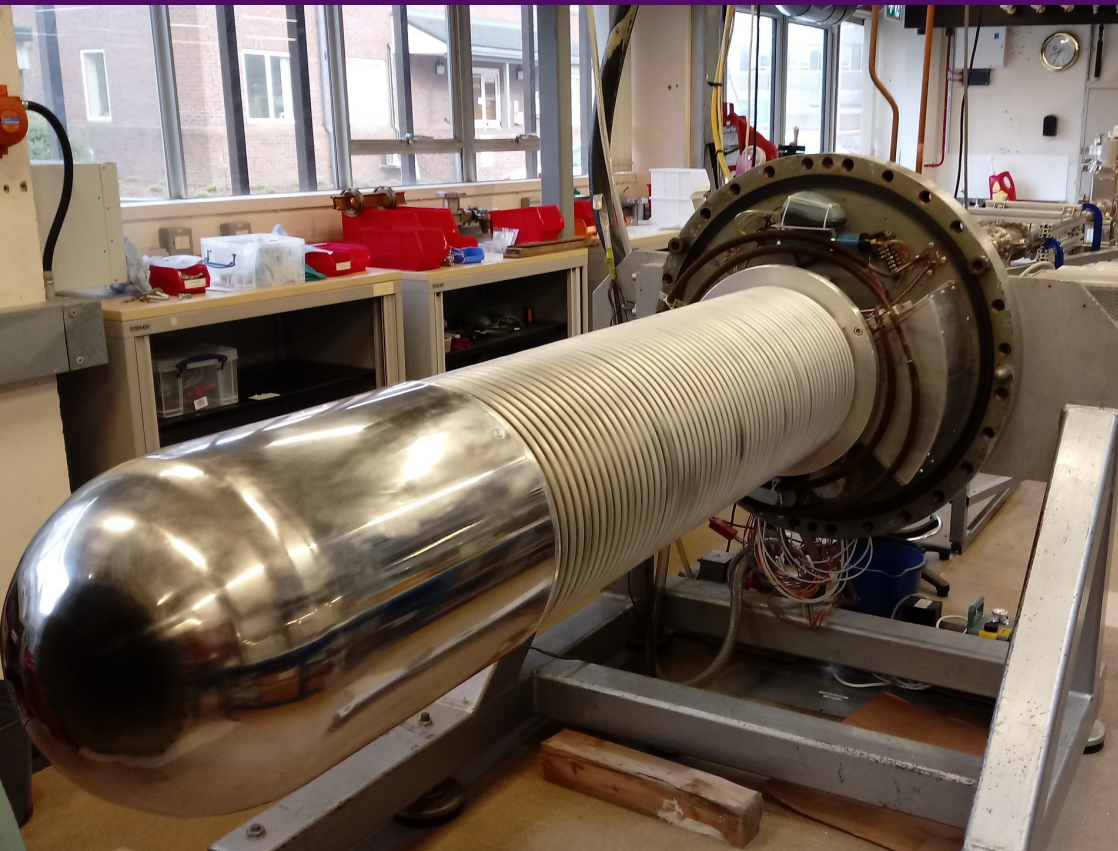


# Hypervelocity Impact Facility for Aerospace Applications

Simulate impact processes across a range of environments, including on airless bodies, planetary surfaces or spacecraft.



Our laboratories have the capabilities to simulate a range of extraterrestrial environments. The unique set of facilities are supported by an experienced and highly qualified technical team.

We are seeking to collaborate with commercial and development partners through contract research, consultancy or Knowledge Transfer Partnerships.

This unique set of laboratories comprises of an All-Axis Light Gas Gun and a Van de Graaff accelerator. These enable the study of space debris impacts (onto spacecraft surfaces, for example) and extrapolation to planetary impact events, as well as micrometeoroids dust impacts as encountered on airless bodies.

#### **Key features:**

All-Axis Light Gas Gun:

- 50  $\mu\text{m}$  to 4 mm projectiles
- 100 m/s to 7 km/s projectile velocity
- 0.13 m to 0.8 m target diameter

Van de Graff Accelerator:

- 2 MeV electric field
- 2 to 80 km/s particle velocity
- 0.15 m to 1 m target diameter

#### **Benefits:**

All-Axis Light Gas Gun:

- Laser intervalometer projectile velocimetry
- High speed pyrometer
- High speed cameras
- Cryogenic cooling

Van de Graff Accelerator:

- Time of flight detectors
- Particle filtering
- Cryogenic target cooling

#### **Applications:**

- Hypervelocity projectile imaging
- Aerospace
- Planetary science
- Materials science
- Imaging detector technology

AstrobiologyOU is a multidisciplinary research group that is working collaboratively to address the scientific, governance and ethical challenges associated with the advancement of astrobiology and related space exploration missions; whilst ensuring societal benefits and sustainability.

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