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matters.

Original thinking at Birmingham has led to the development of a new compact laser method for measuring very small distances and angular rotational changes.

‘EUCLID Interferometer’

A compact laser interferometric measuring device capable of sensing at the pico metre level.

What it is?

EUCLID is an **Easy to Use Compact Laser Interferometric Device** capable of sensing at the pico metre level and over a range of many millimetres.

How does it help?

- Supplied as a simple plug and play USB compatible unit
- Can also be operated in a completely standalone mode
- Requires no mechanical or electrical connections to the object being tracked
- Quick and easy alignment

Background

EUCLID has been developed from an optical readout system intended for drag-free satellites such as the space-based gravitational wave observatory, LISA. Its unique combination of high specification, insensitivity to target mirror misalignment and compactness makes EUCLID suitable for a wide range of applications such as integrated circuit manufacture, length metrology, nanophysics (AFM's), seismometer readout, and general applications in physics research such as gravitational wave observatories.

Prototype Specification

- Ease of alignment +/- 1° over more than 2 mm of working range
- Working distance 7 mm
- Displacement noise ~5pm/rt-Hz at 1Hz
- Measurement linearity ~ 2 nm
- Compact size 60 x 55 x 22 mm
- Low optical power < 50 µW
- Integrated laser source at ~ 667 nm

Why the University of Birmingham?

- The School of Physics and Astronomy was placed among the leading research institutions in the 2008 Research Assessment Exercise
- The department is well equipped with an extensive range of advanced instrumentation and characterisation facilities, supported and maintained by highly skilled technical staff

Who's behind it?

Professor of Experimental Physics, Clive Speake, whose research interests lie in precision measurements in fundamental physics in the laboratory and in space.

What's next?

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