

OMAM

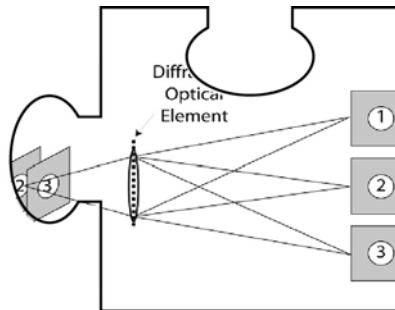
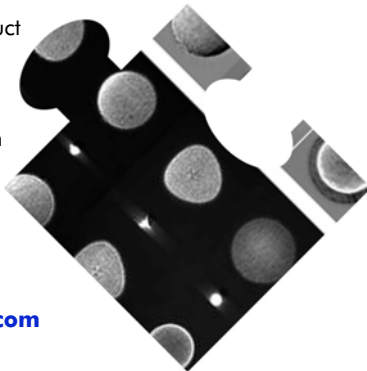
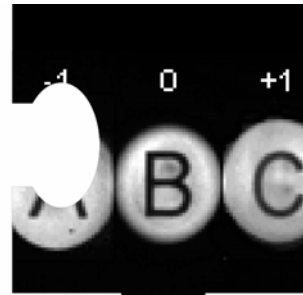
Optical Manipulation and Metrology

This Smart Optics flagship project aims to develop and extend high-precision wavefront sensing (WFS) methods using phase-diversity/wavefront curvature. The use of WFS for industrial metrology applied to optical thin films, to optical (and other precision) surface manufacture and to multi-conjugate adaptive optics (MCAO) in astronomy and terrestrial propagation/surveillance applications will be demonstrated. Measurement of the wavefront shape will be made with sub-Angstrom precision (10x better than current state of the art). With this accuracy WFS becomes a viable tool for high-precision, non-contact metrology. By developing commercial applications of WFS we will address the PPARC goal of promoting commercial exploitation of techniques (in this case AO WFS) originally developed for PPARC science. The WFS methods to be developed are well-suited for use with extended sources (e.g. the solar photosphere) and will be linked with existing DSTL work on multi-conjugate AO for horizontal laser propagation. The high precision achievable is relevant for PPARC science requiring high-precision space astronomy (such as direct detection of extra-solar planets) and to segment metrology for 'ELT' Telescopes.

Scalar Technologies Ltd.

Formed in 1999, Scalar Technologies provides the film, coating and converting industries with a revolutionary in-line coat weight measurement system capable of measuring very low coat weights. For an SME like Scalar, OMAM is a chance to progress scientific research needed to support new product ranges with greatly enhanced capability. Scalar have previously translated academic research into a viable commercial product and understand the requirements involved in taking new technology to market.

www.scalartechnologies.com



BAE Systems Avionics

BAE SYSTEMS designs, manufactures, and supports military aircraft, surface ships, submarines, space systems, radar, avionics, C4ISR, electronic systems, guided weapons and a range of other defence products, many of these with international partners. Key skills include systems integration, complex software and hardware development and advanced manufacturing. Their interest in OMAM is concerned with longer term development of imaging and remote sensing technologies such as active laser illumination, laser materials processing and AO based surveillance applications.

www.baesystems.com

Zeeko Ltd.

Zeeko is at the forefront of creating the latest technologies for controlling the form ('figuring') and texture ('polishing') of optical and engineering surfaces. Their technology can achieve a degree of precision never before attainable by automated means, merging the finest engineering expertise with cutting-edge IT. Applications for their 'Precessions' process supplied with their 'IRP' range of tools range from prosthetic joints to ELT segments. Their existing technology is expected to greatly benefit from the integration of accurate optical metrology through their involvement with OMAM.

www.zeeko.co.uk

NPL Ltd.

NPL is the United Kingdom's national standards laboratory, an internationally respected and independent centre of excellence in research, development and knowledge transfer in measurement and materials science. For more than a century NPL has developed and maintained the nation's primary measurement standards - the heart of an infrastructure designed to ensure accuracy, consistency and innovation in physical measurement. Interest in OMAM clearly stems from its potential application as a high accuracy surface metrology tool. As well as benefiting from access to the technology NPL's involvement will allow it to provide traceability back to national standards.

www.npl.co.uk

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