



**BAE SYSTEMS**

# OMAM - Optical Manipulation and Metrology

Alan Greenaway  
Heriot-Watt

# OMAM

- Commercial goals:
  - Short-term
    - Thin-film metrology
  - Medium-term
    - 3-d surface metrology
  - Long-term
    - BIL, surveillance

Leading to products with an established demand

# OMAM

- A range of research goals of various nature
  - Incremental
    - improving wfs precision
    - relationship to national standard of length
  - Non-incremental
    - wfs on discontinuous and rough surfaces
    - optical  $\mu$ -manipulation
    - fs lasers
  - PPARC interests
  - EPSRC interests
  - OWL/segmented/space optics
  - bio-medical and engineering



**smartoptics**



# OMAM

- Project about to start
  - Legal collaboration agreement signed
  - 3 research students in place
    - Heather Campbell (PhD CASE student ATC)
    - Clare Dillon (EndD student BAE SYSTEMS)
    - David Faichine (EngD student Scalar Technologies)
  - RA applicants interviewed - offers being made



# OMAM

- Work to date
  - Risk-reduction work on laminate structures (Scalar
    - $\pm 20\mu\text{m}$  interface location in structure  $150\mu\text{m}$  to  $8\text{mm}$  thick
    - $\pm 10^{-4}$  rad. on angle (parallelism) of interfaces
  - Generalisation of phase-diversity wfs
    - sufficient conditions established for generalised phase diverse functions (EOARD)