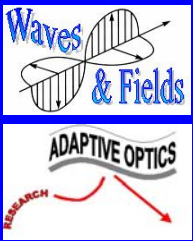




Waves & Fields Group

Alan Greenaway



People

- Sijiong Zhang RA ➤ Left us last week - WFS
- Frank Spaan RA ➤ Exoplanet imaging
- Anne Marie Johnson RA ➤ Optical aperture synthesis
- Richard Eastwood RA/2 ➤ Experiment control
- Heather Campbell PhD ➤ Generalised phase diversity
- Clare Dillon EngD ➤ Terrestrial imaging
- David Faichnie EngD ➤ Thin film/laminate metrology



People



- Weiping Lu
- Tao Huang
- Chaos, Complexity and Dynamics



Projects



- OMAM
 - Wavefront sensing
 - PPARC Smart Optics Faraday
 - Optical Manipulation & metrology
 - Exoplanet imaging
 - PPARC
 - Imaging spectroscopy
 - Optical aperture synthesis
 - EMRS DTC
 - Fourier telescopey
- PREDRIS
- OAS



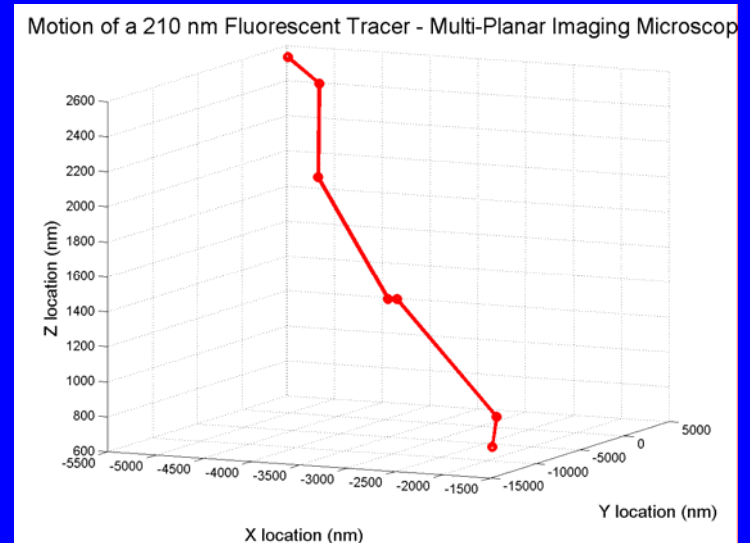
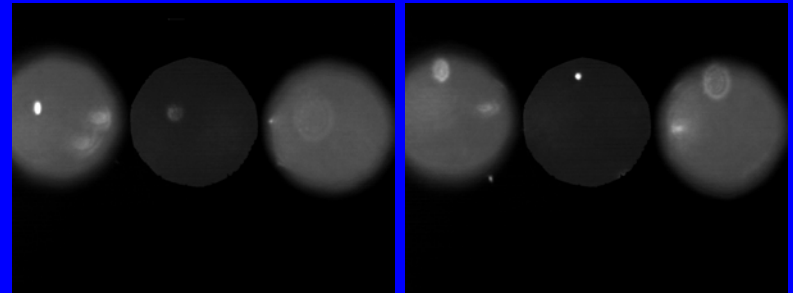
Projects



- OAS Communications
 - Free-space optical communications
 - USAF
- 3C4D
 - PIV
 - EPSRC
- Bio-photonics
 - 3-dimensional imaging
 - EPSRC
- Femtosecond lasers
 - Pulse & beam shaping
 - Leverhulme Trust

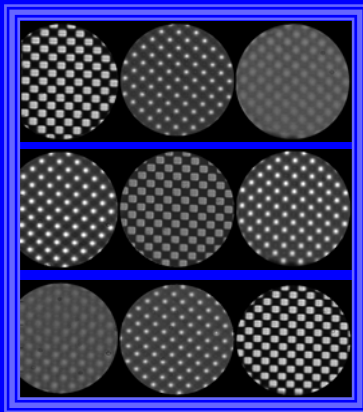
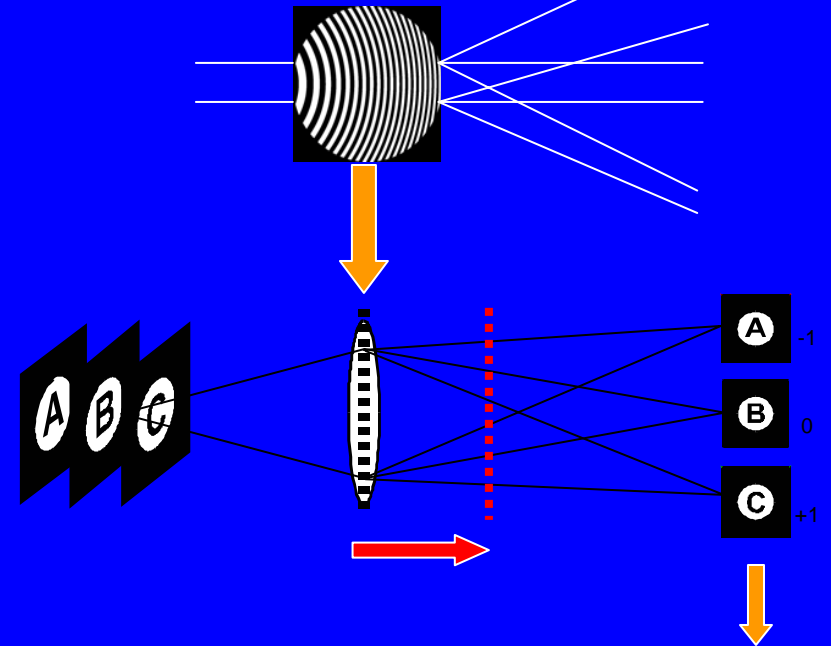
3C4D

- 3-component velocity measured in 4-D
- Applications – fluid flow in reciprocating engines, spray drying and micro-fluidics
- Single view point
- Uses DOE or anamorphic optics

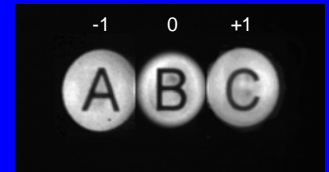


3-D imaging

Off-axis Zone plate + lens
gives 3-d image slices.
give $\pm 0.7\text{nm}$ wavefront
accuracy \rightarrow 3-D location



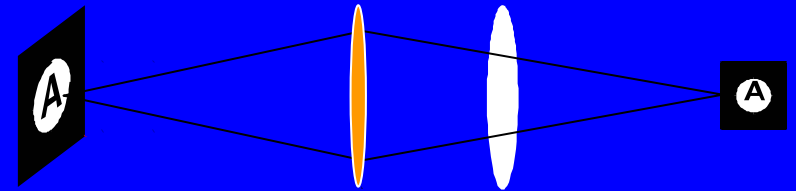
Displacement of grating
equalises magnification
thus telecentric system



Blanchard & Greenaway
App.Opt. 38(1999)6692

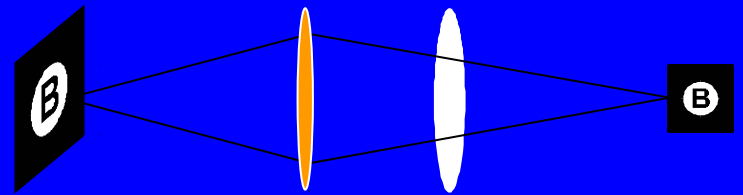
3-D imaging

- Can use 3-d system to scan an image.
- Write on 3-D surfaces
- Scan in-focus plane
- Magnification remains constant during scan
- System works by scanning the 2nd PP



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