UNIVERSITY OF CAMBRIDGE

Magdalena Ridge Observatory

The Magdalena Ridge Observatory Interferometer (MROI): first light and beyond

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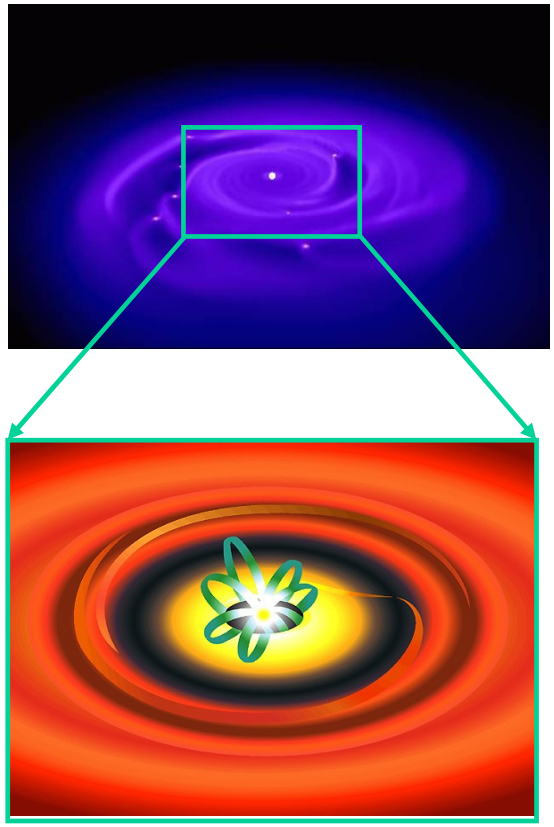
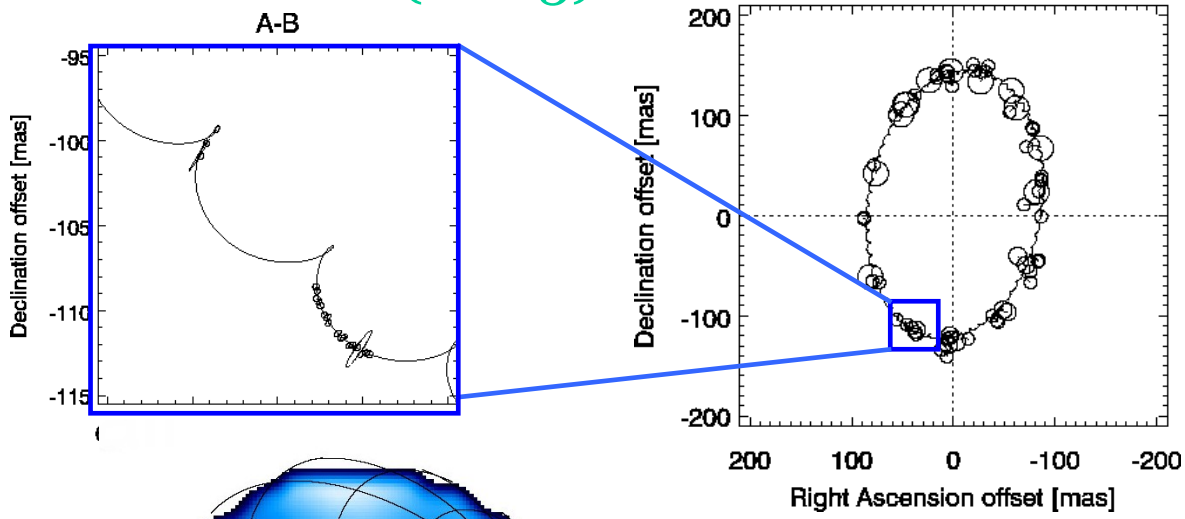
CAVENDISH ASTROPHYSICS

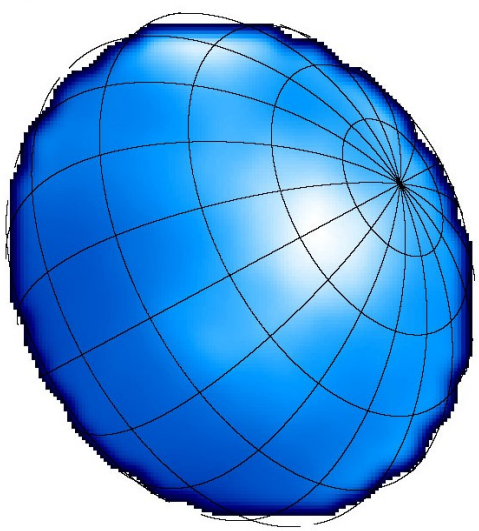
Optical interferometry provides access to a unique discovery space



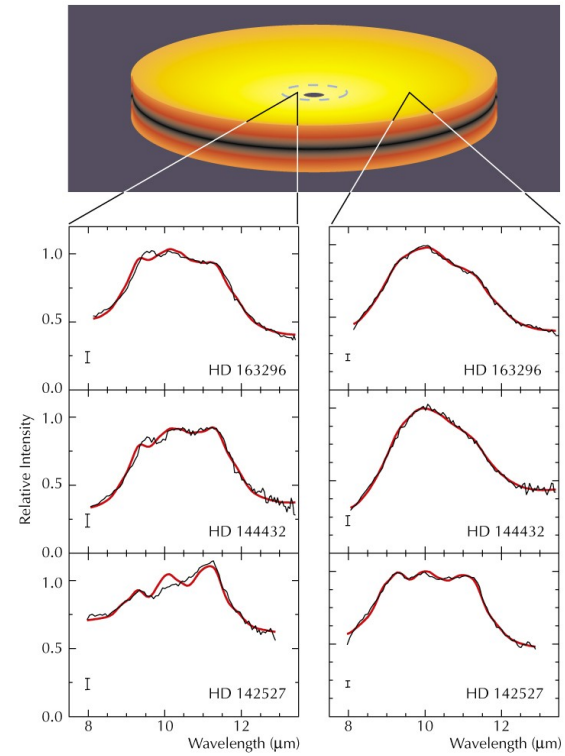
Interferometery is becoming a routine tool for many fields of astrophysics

Hummel et al (2005)





Monnier et al (2007)

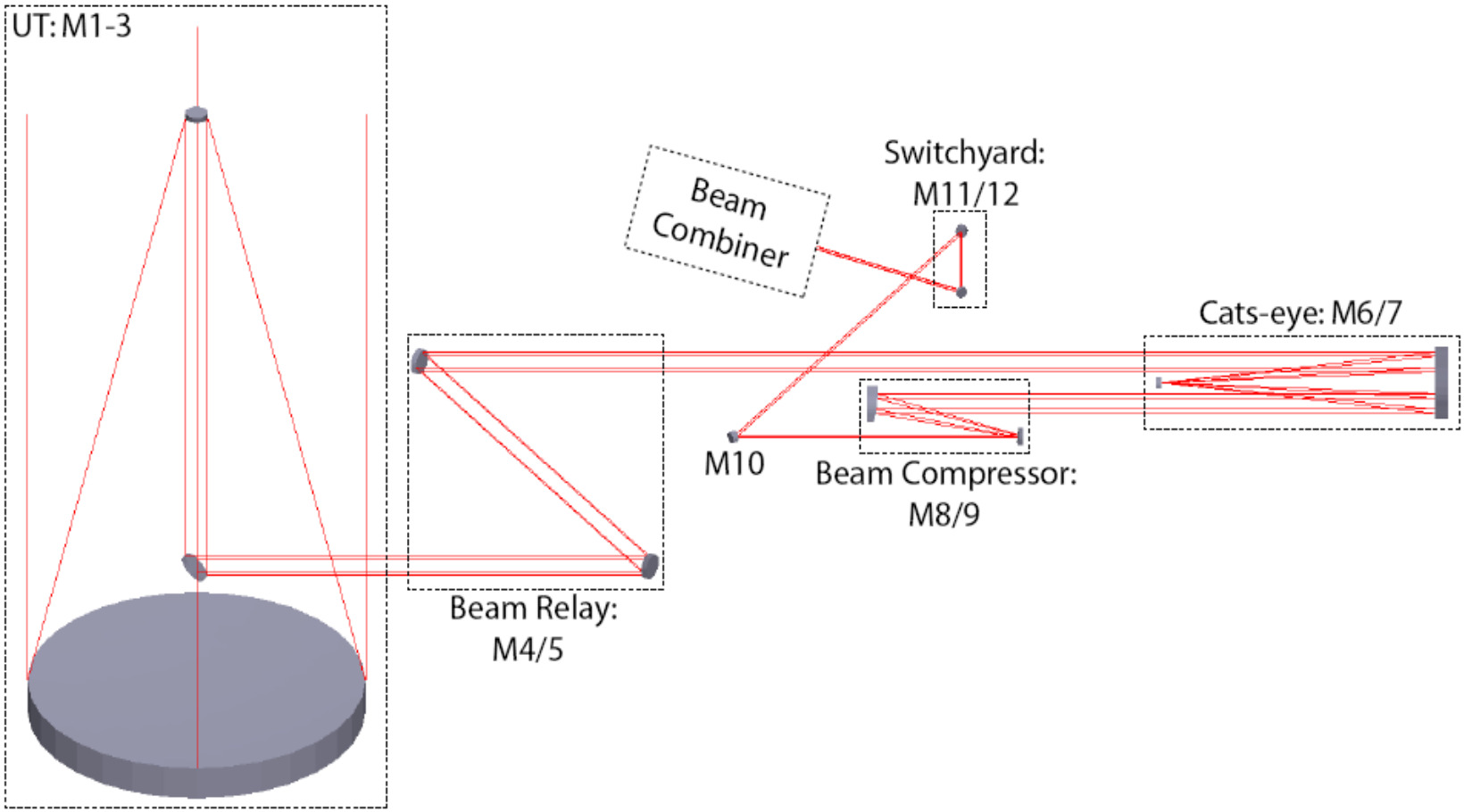


Mid-IR Spectra of Inner and Outer Discs Around Three Young Stars

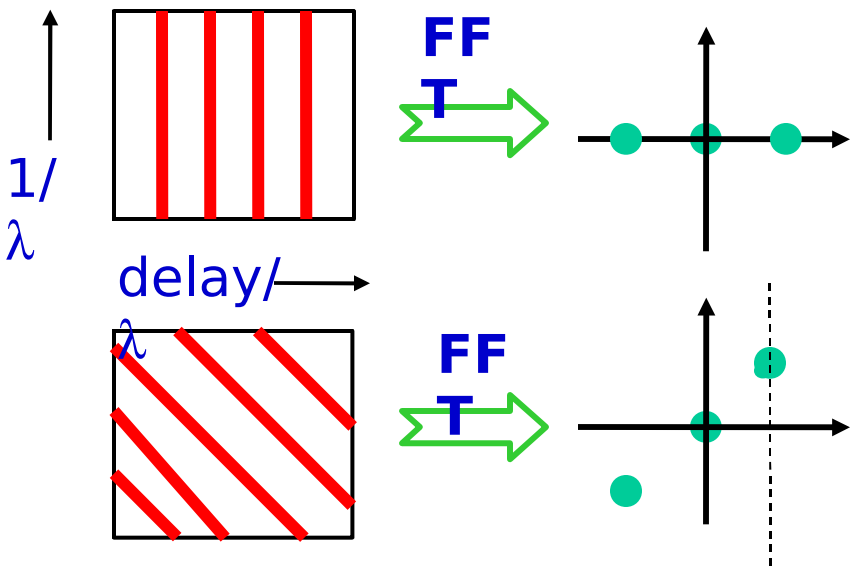
Van Boekel et al (2004).

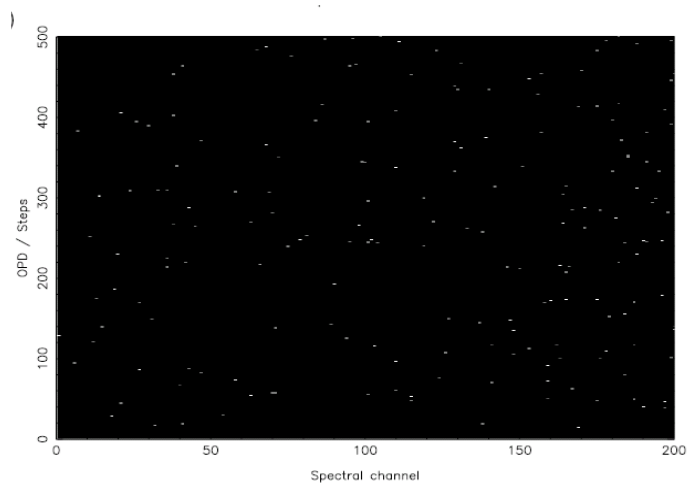
The MROI is a collaboration between Cambridge and New Mexico Tech

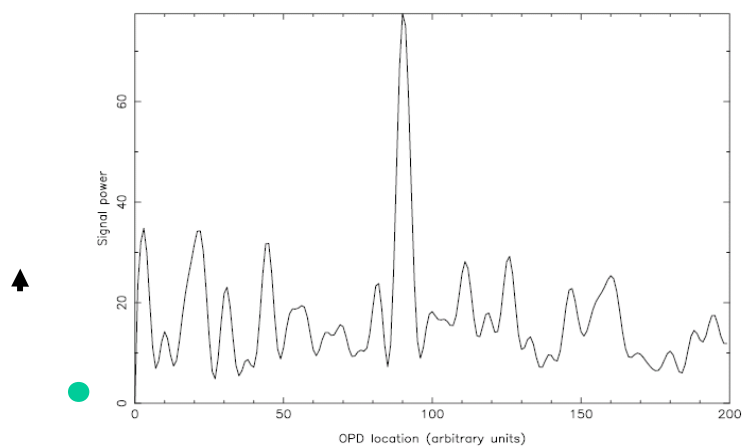
The MROI is an optical interferometer optimized for faint-source imaging



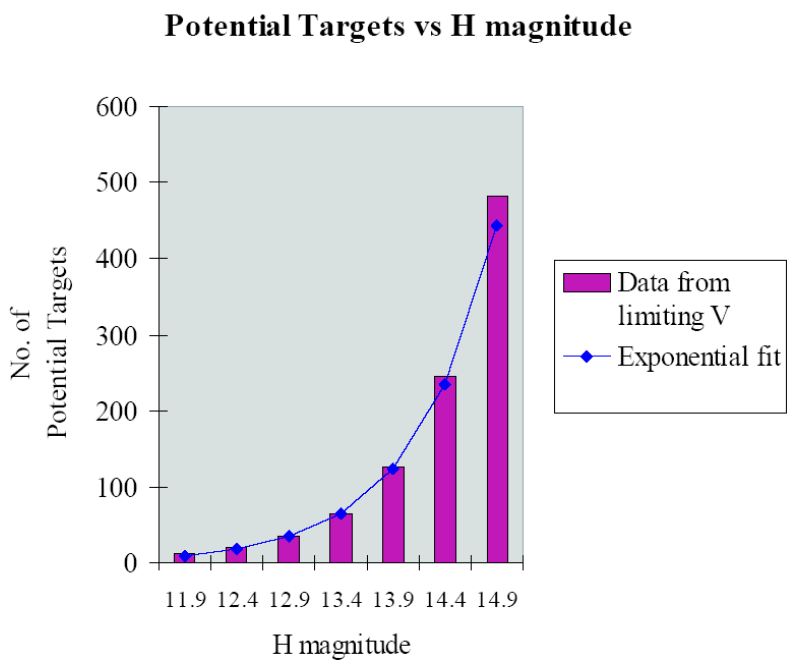
Group-delay fringe tracking allows the faintest targets to be acquired

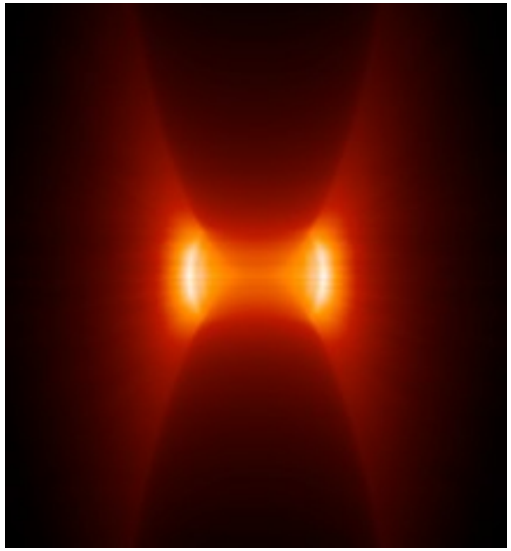






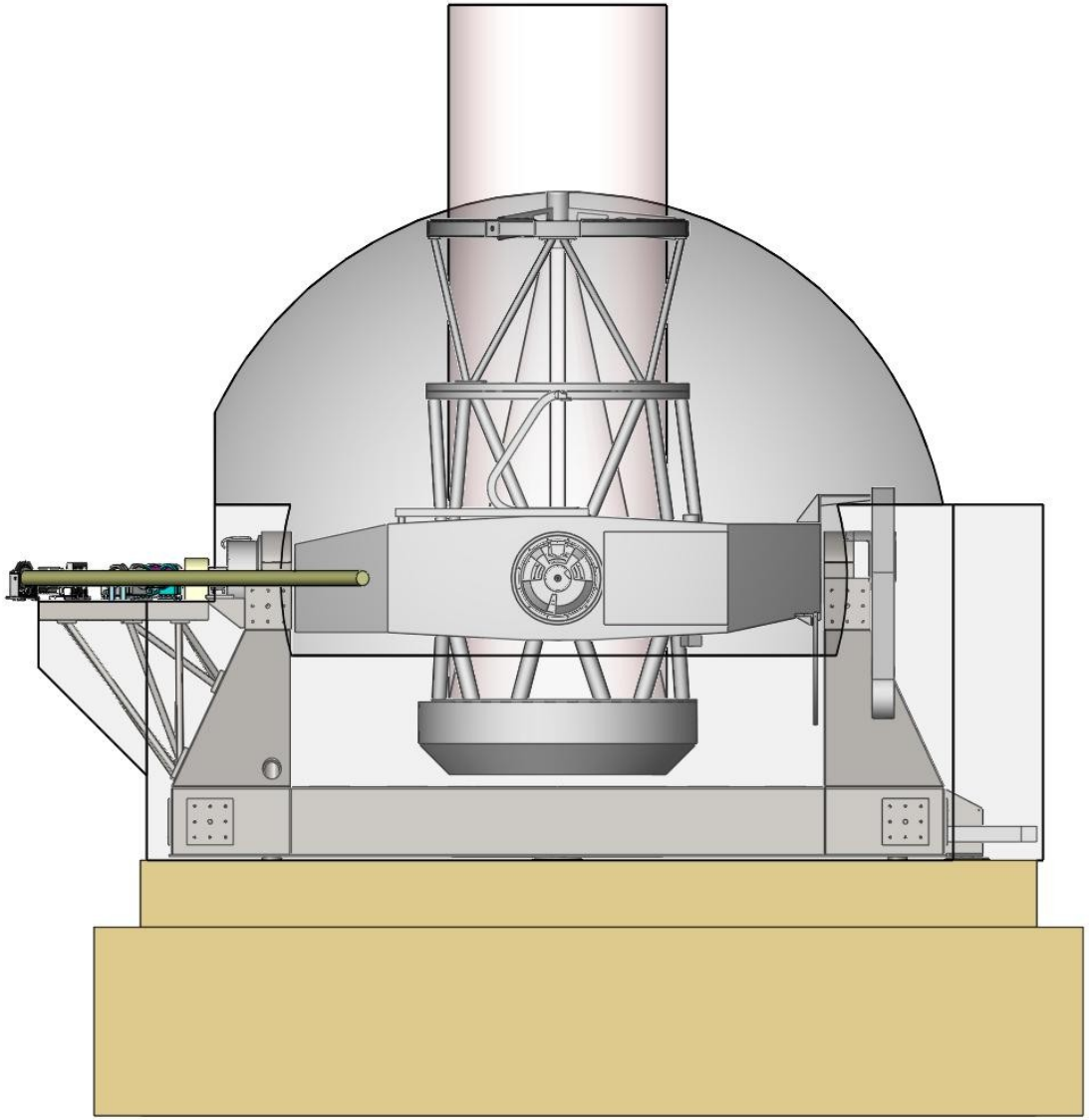
It will be the first interferometer able to image dozens of AGN



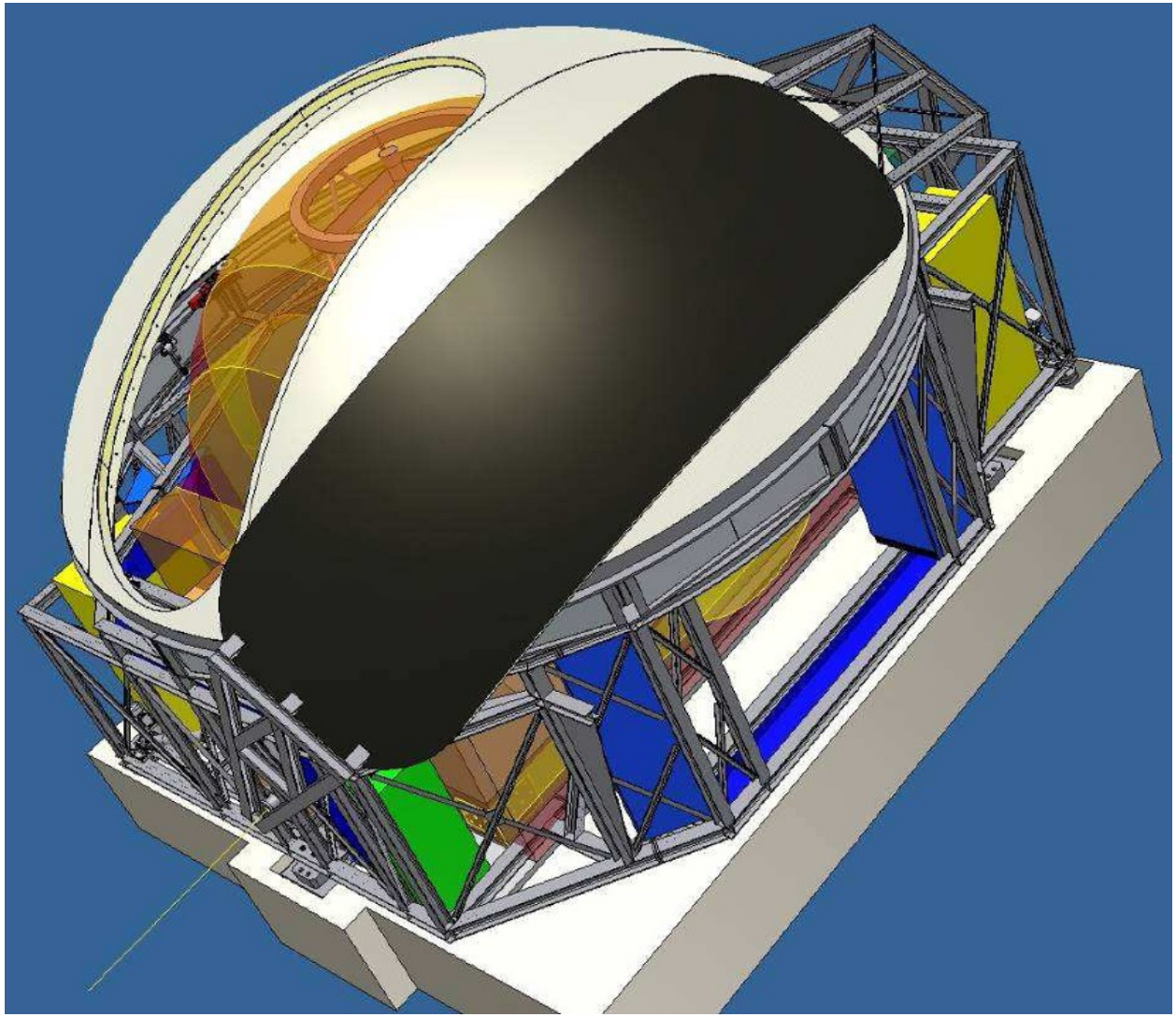


Northern hemisphere source counts for S1, S2 and QSO candidates as a function of H magnitude.

The unit telescopes are being built by AMOS (Belgium)



The enclosures are being designed by EIE (Italy)

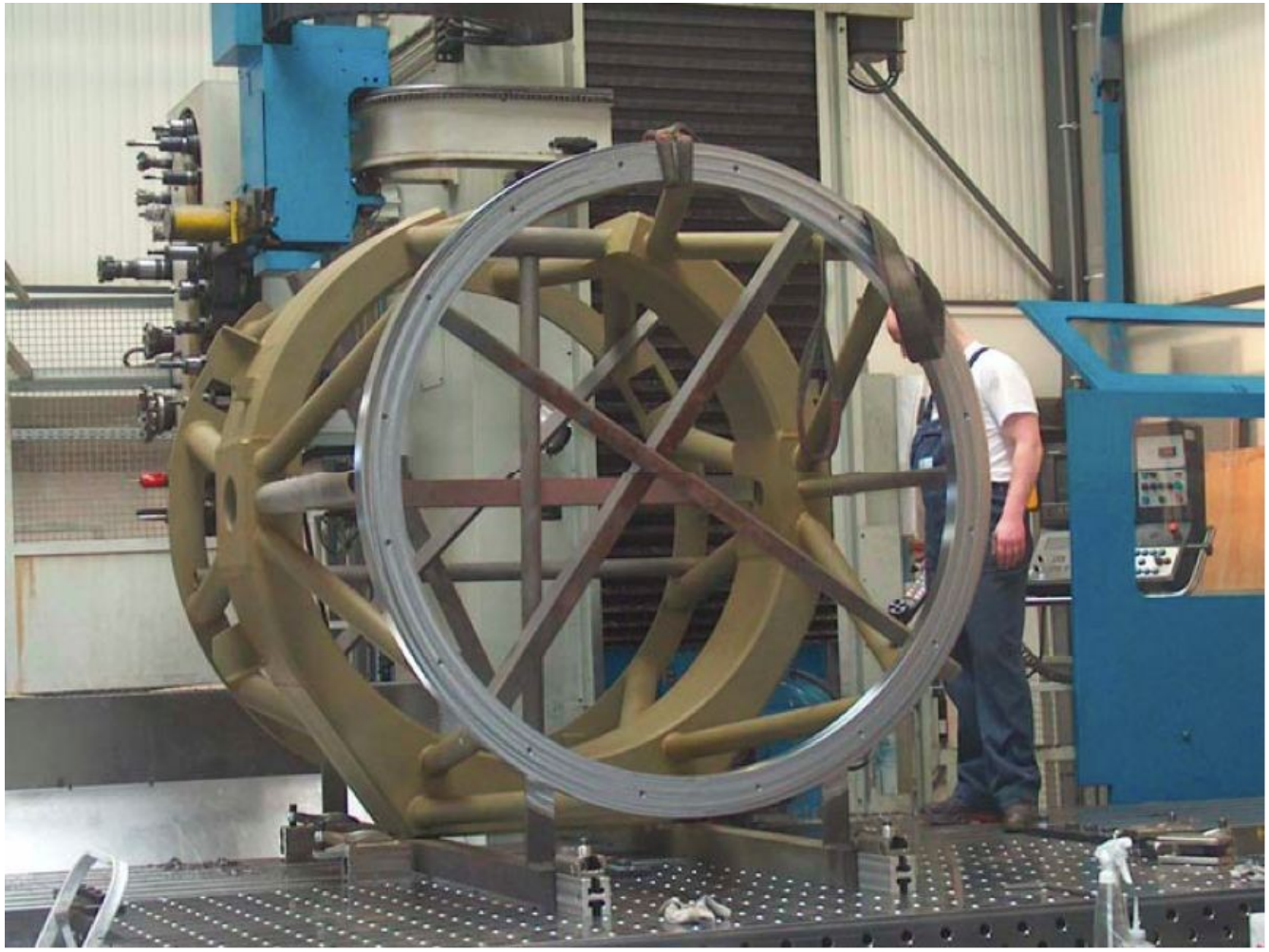


Timeline

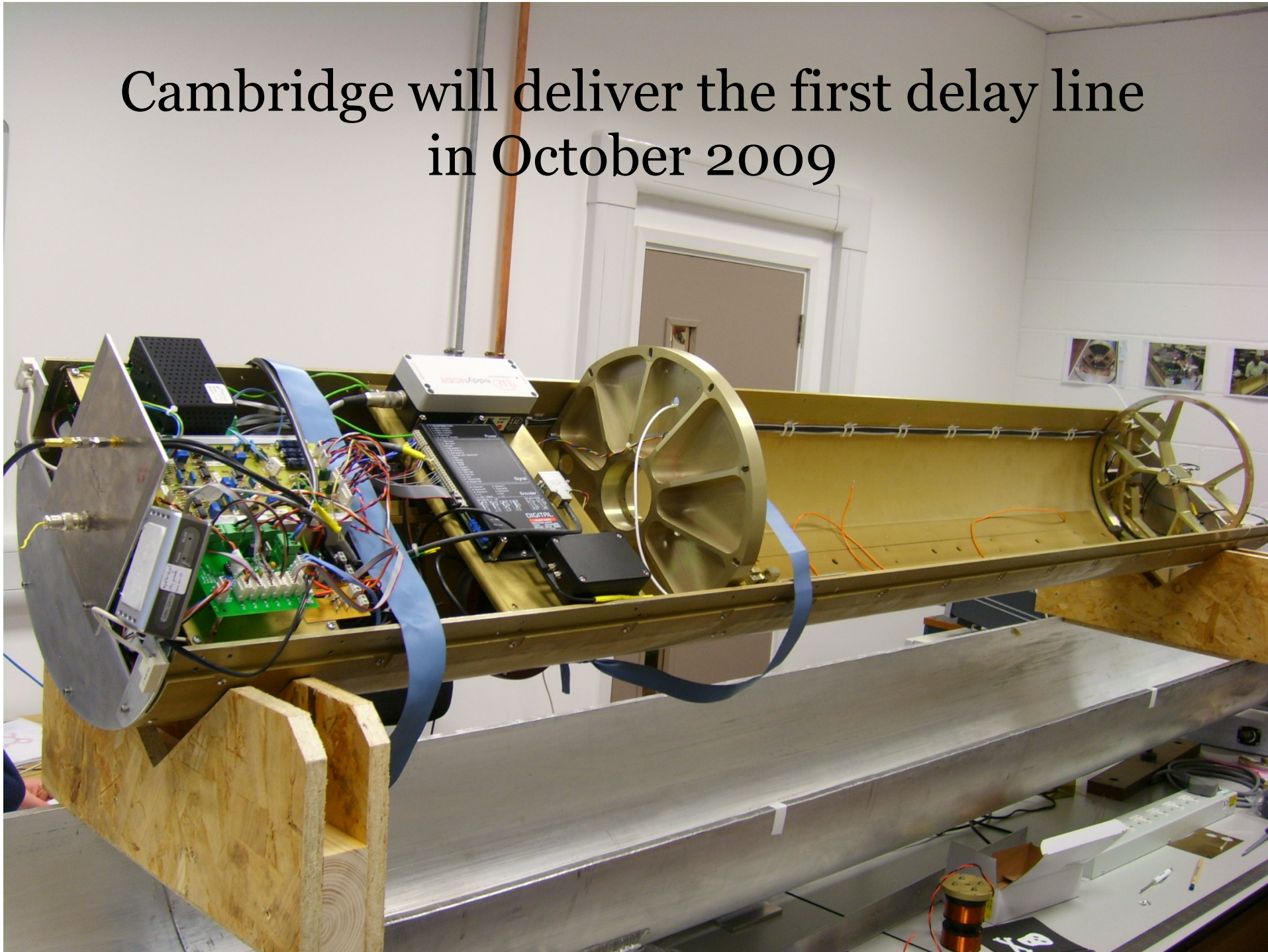
- First light 2010
- First fringes 2011
- Telescopes arrive ~ every 6 months
- 6-telescope science operations 2014

June 2008

Telescope integration begins April 2009



Cambridge will deliver the first delay line in October 2009



Opportunities for involvement

- UK will have access to 30 nights/year for the first 10 years
- Opportunities to get ~50 additional nights for contribution to running costs, ~$500k/year

- Right now – refining science reference mission
- Science working groups looking at commissioning science – get involved!

- Posters:
  - O-P01 AGN, Baron et al
  - H-P29 Planet formation, Young et al