

Future Directions for Interferometry

A workshop
Tucson, Nov 13-15, 2006



2000 Decade Review

- 1998 - Advanced array concept -
Roddier, Townes, Traub,.....

2004 OIR Long Range Planning Committee - A Roadmap for National Facilities

- Strategies for Evolution of U.S. Optical/Infrared Facilities
- ASTRONOMY AND ASTROPHYSICS BEYOND 2010
 - Extremely Large Optical-Infrared Telescope (ELOT)
 - Special Purpose Extreme Adaptive Optics Facility
 - Infrared Interferometer
 - All-Sky Transient Array

Infrared Interferometer

- **INFRARED INTERFEROMETER**

This will also be a special-purpose, stand-alone facility with large collecting area and large baseline. One concept involves construction around an existing large telescope or telescopes. Each telescope within the array will need to be equipped with adaptive optics and a robust opto-mechanical system. A 100 m – **~1km baseline at 1 micron** will produce milli-arc second to sub-milli-arc second resolution, greater than Very Long Baseline Interferometry and the Space Interferometry Mission, and with considerably greater sensitivity. **Studies of extrasolar planets and disks, active galactic nuclei, close binaries, astrometry, kinematics of the local group**, and so on are likely to figure prominently in its science case. Recent studies of atmospheric properties at the Dome C site in **Antarctica** suggest this site may also be well suited to the next generation of infrared interferometers.

OIR LRP Recommendation Followup

- Dec 2004 NOAO staff meetings
 - Interferometry, Antarctic
- Committee on Ground Based Interferometry (COGBI)
 - Deane Peterson, Steve Ridgway co-chairs
 - AAS Special session (Jan 2006)
 - SPIE Discussion Session (May 2006)
 - Science priorities

NOAO 2006-2010 Long Range Plan

- AURA New Initiatives Office Major Program Goals:

Develop an understanding of the scientific potential and technology drivers for next generation O/IR facilities (e.g., a 50m–100m single aperture telescope; O/IR interferometer; South Pole science) via small, structured community workshops. The goal is to develop the background material needed to shape and inform discussion for the next decadal survey.

Proposal to NSF Antarctic Programs - Antarctic Site Study

- U Arizona
- U Wisconsin
- Cal Tech
- Berkeley/SSL
- Chinese Polar Research Institute/Nanjing
- NOAO
- U New South Wales
- Chicago
- U Arizona

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Workshop Times

- Monday/Tuesday/Wednesday
 - 7:45 - Coffee/rolls/fruit
 - 8:15 - session start
 - Refreshments and lunch provided daily
 - Reception Monday after work

Workshop Places

- Monday/Tuesday
 - Sheraton
- Wednesday
 - NOAO main conference room

Workshop Concept

- Organization
 - Monday - Science
 - Tuesday - Techniques
 - Wednesday - Roadmaps
- Approach
 - Invited overviews
 - Pre-meeting caucus*

* Caucus - an informal meeting at which potential voters and candidates talk about the issues