

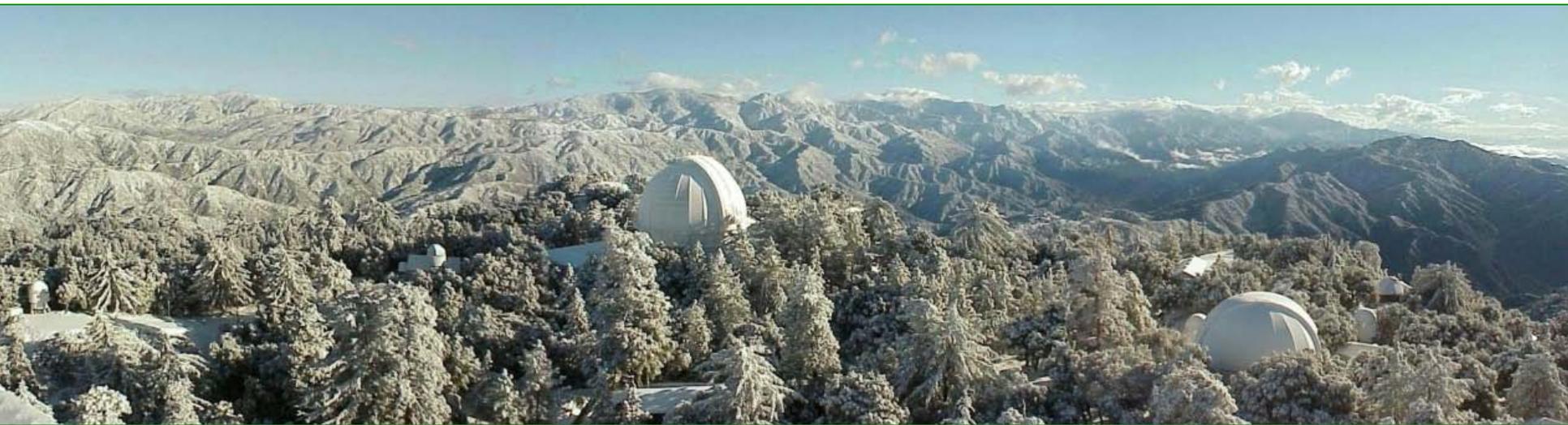
# The CHARA Array as a ReSTAR Asset



*H.A. McAlister*

*March 1, 2011*

*CHARA Collaboration Year Seven Science Review  
Atlanta, Georgia*



Observatoire  
de la CÔTE d'AZUR

# But first, Interferometry and Astro2010

- Ground-based OIR Program Prioritization Panel recommended:
  - An interferometry operations & development program at  $\sim \$3\text{M yr}^{-1}$
  - Support should focus on:
    - “advancing interferometry technology”
    - “making interferometry more accessible to mainstream astronomers”
  - This program would “set the stage for a facility-level interferometer in a decade hence.”
  - Recommended a URO-like competitive program for OIR interferometry for:
    - partial operations support in return for public access
    - community resources to develop new public users
    - interferometry technology development
    - decade support level at  $\sim \$27\text{M}$
  - The PPP cited numerous interferometry ties to Science Frontier Panel questions
- But, interferometry is virtually ignored in main report.

# What is ReSTAR?

- **Renewing Small Telescopes for Astronomical Research**
- Following 2000 Decadal Review, NOAO was charged with advancement of the “System” – “the ensemble of all astronomical facilities and capabilities to which U.S. astronomers have access, whether public or private.”
- “Small” means apertures  $\leq 5$  meters
- ReSTAR is a 10-yr, 3-phase program that started in FY2009-11
  - Phase 1 provided instrument upgrades at the KPNO 4-m & 1/16 access to the Palomar 5-m
- Phase 2 draft solicitation was released in mid-2010 with a meeting for interested persons in Tucson on 15 Dec. McAlister & ten Brummelaar attended on behalf of CHARA.

# Interferometry and ReSTAR

- **ReSTAR 24 Aug 2010 Phase 2 draft solicitation calls for**
  - **Studies of optical interferometry**
    - **Scientific justification**
    - **Plans for community access to existing facilities**
    - **Ideas about development of future facilities**
- **CHARA's experience shows that interferometry is well beyond the study phase**
  - **The user demand and breadth of science is there**
  - **User-friendly data reduction pipeline to yield  $V^2$ , diameters, binary parameters in place**
  - **CHARA's external users have been pleased with their experience**
- **Interferometry is "shovel ready" for expanded community access via ReSTAR**

# CHARA's Community Access Experiment

- CHARA has now offered 2 years of community access
  - 2010 AB: 13 proposals requesting 17.1 nights from the 7.4 allocated => subscription rate = 2.31
  - 2011 AB: 20 proposals requesting 24.5 nights from the 5.0 allocated => subscription rate = 4.90
- There was very little overlap between proposed science and that now underway by the CHARA Collaboration, demonstrating the broad applicability of interferometry
- We consider this experiment to be highly successful

# The CHARA ReSTAR Proposal

- The Phase 2 draft solicitation was subsequently amended:  
*We recognize that both optical interferometry and adaptive optics are mature enough technologies and techniques that we welcome proposals that would construct, enhance, or provide access to such capabilities.*
- We thus prepared and submitted a proposal prior to the 1 Feb 2011 deadline
- The proposal linked CHARA to the ReSTAR Science Areas of
  - Exoplanet studies
  - Star formation & YSOs
  - Stellar astrophysics
  - Time domain science

# Proposal Terms

- **CHARA will provide 30 nights per year to the community**
  - **Represents about 11% of available time**
  - **Will be allocated through NOAO TAC process**
- **In return, CHARA request funds for staff enhancement**
  - **Presently 9 mountain staff support the Array**
    - *4 are state funded and 5 are grant funded*
  - **Additional staff will enhance performance, reliability, and efficiency**
  - **Additional requested staff (FTE):**
    - *ReSTAR Support Scientist (1.0)*
    - *BCL Assistant (0.4)*
    - *Engineering Assistant (0.6)*
    - *Array Operator (1.0)*
    - *Electronics Tech (0.3)*
    - *Assistant Site Manager (0.7)*
    - *Machinist (0.5)*
  - **Funds for equipment upgrades:**
    - *PoP automation*
    - *Tip/Tilt automation*
    - *TCS Upgrades*

# Proposal Terms

- **3-yr proposal budget:**
  - **Salaries & Wages** \$668 K
  - **Benefits** 207
  - **Supplies & Equipment** 210
  - **Indirect Costs** 492
  - **Total Amount Requested** \$1,597 K
  
- **NOAO will notify selected partners in time for an October 2011 submission to NSF for FY 2012 funding**

