

# Third System Workshop: A Strategic Plan for Instrumentation



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# Origin of the System - AANM

- Difficulty of defining a sensible and competitive federal program for ground-based O/IR astronomy because
  - most of the facilities are private
  - Most of the community does not have access to the private facilities
- Only viable approach was to think of public and private together as a system
  - Use available funding and other resources most effectively
  - Combine leverage and complementarity with the strength of diversity
  - Ensure community access to the widest range of cutting-edge capabilities

# System Requirements

- Resources for development
  - Capabilities have to keep up with state-of-the-art
  - Provide motivation for following plan
- Access to capabilities
  - Scientifically, this makes the system interesting
  - Motivates entire community to support and advocate system-wide
- A Strategic plan for evolution
  - Everyone has a voice and can affect outcome
  - Guarantees resources are being used effectively

# Resources

- TSIP
  - NSF-funded program that funds independent observatories to build instruments - time on these telescopes equivalent in value to half the funds received are available to the community
  - \$16 million invested by NSF since FY2002
  - Instruments funded for Keck, Magellan, MMT, LBT, and WIYN
  - Program oversubscribed every year, even though there are only a handful eligible to propose
- PREST
  - NSF-funded program for improvement of capabilities of small telescopes, time granted to community

# Telescope Time

- TSIP
  - 224 nights on telescopes 6.5-11.8m
  - 40 nights on telescopes 3.0-6.0m
  - Time on the large telescopes is always highly oversubscribed.
- Community Access Telescope Clearing House
  - <http://www.noao.edu/system/catch>
  - Links to available capabilities - categorized by facility and by large/small, O/IR, imaging/spect.

# Strategic Plan

- 2 previous “System Workshops”
  - Scottsdale (2000)
    - First attempts to discuss system
    - Produced initial list of priorities for TSIP reviews
  - Alexandria, VA (2004)
    - Updated TSIP instrument priorities
    - Discussions aimed at broadening system view to include
      - Smaller telescopes
      - Software and archives
      - Collaboration on instrument development

# Why a Third Workshop

- ACCORD proposed a third workshop that would go further in developing a strategic plan for instrumenting the 3.5-10m telescopes
  - Progress on accomplishing plan can be monitored and assessed
  - Endorsed by ACCORD and by the broad community, such a plan provides a focus for a common vision
  - A strategic plan shows we have done our homework; it makes arguments for getting more resources more compelling

# Process of This Workshop

- Revisit the areas of current active research interest and find the best science that motivates GB O/IR observations.
- Derive the instrumental capabilities needed on 3.5-10m telescopes to carry out these studies.
- Match these with the properties of various facilities, and the interests and strengths of the groups that build instruments for them.
- Synthesize this information into a plan that (a) provides the high priority capabilities to the community and (b) aligns well with the interests of the federal and independent facilities.



# Impact of the Senior Review

- A system of ground-based O/IR facilities was recognized as the essential framework for U.S. competitiveness.
- The NOAO and Gemini telescopes are still critical elements of the system.
  - A one-time reinvestment opportunity was suggested to renew the NOAO capabilities on small and medium telescopes (or even build new ones).
- Further, the report endorses the public-private partnership as the necessary approach to building and operating the next generation of (very expensive) facilities.

# Where we differ

- The SR report suggests that a high-level commission should be established to manage the system.
- My own belief is that we will do better by making this a bottom-up federation - where all parties can find something to gain by participating.
  - Acknowledge that each group may have different interests and create mechanisms that serve these.
  - Create strategic plan with broad community participation - such a plan becomes a tool for bringing new resources into GB O/IR astronomy.
  - That's how we have gotten this far.

# Organization of the Workshop

- 3 science talks to introduce some of the fundamental problems
- Talks from the representatives of the 3.5-10m telescope facilities (ACCORD, mostly)
  - Important properties of facilities
  - Strengths, interests, and priorities of the instrument building groups
- Breakout groups will subdivide the field further and develop science-driven, prioritized lists of instrumental capabilities
- A plenary discussion will identify the matches and apparent elements of a strategic plan

# The Organizing Committee will clean up the mess

The organizing committee

- Todd Boroson (NOAO)
- Bruce Carney (UNC)
- Alan Dressler (OCIW)
- Suzanne Hawley (U. Wash)
- Shri Kulkarni (Caltech)
- Pat Osmer (Ohio State U.)
- Joe Shields (Ohio U.)

will stay on for another half day and begin work  
on the report

# Logistics

- Mia can solve all problems
- We want copies of all presentations - we will post these on a workshop web site
- We will record the discussion to help the organizing committee
- Questions?

# Instructions to Breakout Groups

# Deliverables

- List of high priority observations with scientific justification - indicate relative priority if possible
- Parameters of instrumentation needed for each
  - Telescope size, resolutions, areal or wavelength coverage, etc.
- Relation to existing facilities

# Guidance

- Focus on
  - Capabilities that don't exist
  - Capabilities that are needed in quantities or modes that are not easily available
- Each group will have 15 minutes to present
- Don't feel too constrained by the title of your group - important to make sure all the good ideas in important areas are exposed
- Pace yourself - you have one hour today and 3.5 hours tomorrow morning; think about how to use that amount of time most constructively
- Morning break food and beverages will be here
- Be here for the final plenary session (reports and discussion) after lunch tomorrow promptly at 1:00



# Plenary Session Questions

- Are there critical capabilities that are missing from the system?
  - E.g., TOO access to unique capabilities, common capabilities?
- The 2.5-5m telescopes don't seem to be engaged in the system (WIYN excepted). How can we fix this?
  - Think bigger?
  - Change the cost structure?
- Is there a general problem with the environment for building instruments?
- Are there other ideas for improving how the system - or TSIP - works?

# Breakout Groups

- Chemical and Structural History of the MW and its Neighbors - *Tim Beers and Andy McWilliam* (**LODGE BOARDROOM**)
- Evolution of Global Properties of Galaxies over Cosmic Time - *Pat McCarthy and Harry Ferguson* (**JD's TERRACE**)
- When Stars Explode - *Mark Phillips and Tom Matheson* (**La Vinca**)
- Connections between Star and Planet Formation - *Lisa Prato and Mike Meyer* (**ARIZONA ROOM**)
- Transient and Variable Phenomena - *Paula Szkody and George Djorgovski* (**LAS PALMAS C**)
- Planet Searches - *Scott Gaudi* (**One Corner of This Room**)
- Solar System - *Marc Buie and Faith Vilas* (**Other Corner of This Room**)
- **Wifi Password: research**