Advanced Observing Program Awarded "Image of the Month"

Visitor Center Lead Observer Adam Block and amateur astronomer Andy Fisher captured this striking color image of M63 during one of last quarter's Advanced Observing Program nights at the Kitt Peak Visitor Center Observatory. The photo was selected as "Image of the Month" for February 2000 by SBIG. (See inside under NOAO Public Outreach.)
This report consists of summary statistics and other data on NOAO observing programs, telescope usage, personnel changes, and visiting scientists for the fiscal quarter ending March 31, 2000. Quarterly highlights of Educational Outreach and Public Outreach activities are also included here. The Appendices contain the comprehensive list of all PI's and collaborators, program titles, telescopes used, and observing hours associated with the quarter’s observing programs.

Scientific highlights and current updates on NOAO initiatives, instrumentation, and operational activities will be published in the upcoming NOAO Newsletter, No. 62, June 2000.
**Telescope Usage Statistics**

**Cerro Tololo Inter-American Observatory (CTIO)**

In the quarter ending 31 March, the observing programs of Principal Investigators accounted for almost 77% of total available telescope hours; 13% of CTIO telescope time was used by NOAO scientific staff observers. Six percent of available telescope hours were allocated to scheduled maintenance (including instrument tests, engineering, and equipment changes).

Total “downtime” for CTIO telescopes (hours lost to weather and equipment problems) totaled 4%—of which 2% was lost to bad weather and 2% to equipment problems.

<table>
<thead>
<tr>
<th>Telescope</th>
<th>Hours Available</th>
<th>% Hrs. Used By:</th>
<th>% Hrs. Lost To:</th>
<th>% Hrs. To: Scheduled Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-m</td>
<td>907.8</td>
<td>84.8%</td>
<td>3.4%</td>
<td>0.9% 2.3% 8.7%</td>
</tr>
<tr>
<td>1.5-m</td>
<td>884.9</td>
<td>74.7%</td>
<td>10.9%</td>
<td>2.5% 2.9% 8.9%</td>
</tr>
<tr>
<td>0.9-m</td>
<td>866.3</td>
<td>64.3%</td>
<td>30.1%</td>
<td>1.8% 1.6% 2.3%</td>
</tr>
<tr>
<td><a href="mailto:0.6-m@0.9-m">0.6-m@0.9-m</a>*</td>
<td>512.2</td>
<td>87.2%</td>
<td>5.2%</td>
<td>2.3% 3.0% 2.4%</td>
</tr>
<tr>
<td>All Telescopes</td>
<td>3,171.2</td>
<td>76.8%</td>
<td>13.1%</td>
<td>1.8% 2.4% 6.0%</td>
</tr>
</tbody>
</table>

*Use restricted to dark side of the moon.
Kitt Peak National Observatory

In the quarter ending 31 March, about 62% of total available telescope hours at KPNO went to the observing programs of Principal Investigators; 7% were devoted to those of NOAO scientists. Scheduled maintenance (including instrument tests, engineering, and equipment changes) accounted for approximately 2% of total telescope hours.

Total “downtime” (hours lost to weather and equipment problems) for KPNO telescopes was 29%. Almost all these lost observing hours were due to bad weather (27%), with only 2% lost to equipment problems.
Summary of Observing Programs

CTIO and KPNO **

Sixty-one observing programs were carried out at CTIO this quarter; 11 of these were thesis programs. At KPNO, total observing programs numbered 97, of which 18 were thesis programs.

| CTIO Observing Programs by Type (US vs Foreign) |  
| Three Months Ending | 3/00 | % Total |
| Programs (US) | 30 | 49% |
| Programs (non-US) | 20 | 33% |
| Thesis (US) | 10 | 16% |
| Thesis (non-US) | 1 | 2% |
| Total Programs | 61 | 100% |

| KPNO Observing Programs by Type (US vs Foreign) |
| Three Months Ending | 3/00 | % Total |
| Programs (US) | 72 | 74% |
| Programs (non-US) | 7 | 7% |
| Thesis (US) | 17 | 18% |
| Thesis (non-US) | 1 | 1% |
| Total Programs | 97 | 100% |

** Includes observing programs conducted by NOAO staff astronomers.

A comprehensive listing of all PI’s, Co-I’s, and collaborators, as well as program titles, telescopes used, and observing hours associated with the quarter’s observing programs is attached as Appendices A and B.

Public Outreach Activities

NOAO Public Outreach manages all activities at the Kitt Peak Visitor Center, including the Center’s retail operations and educational exhibits, the Kitt Peak Docent program, daily tours of Kitt Peak facilities, and the increasingly popular nighttime observing programs for the general public. Public Outreach also coordinates all media and filming requests involving Kitt Peak facilities and personnel. This quarter’s highlights:

- Almost 9,000 people visited Kitt Peak this quarter on a formal guided tour or observing visit. (This number does not include the many visitors who came to Kitt Peak without taking a formal tour.) Approximately 14% of this quarter’s visitors (1,289) participated in the fee-based Nightly Observing Program.

- A group of 30 participants from the Japan Spaceguard Association visited the Mayall 4-meter, 2.1-meter, and McMath-Pierce solar telescope facilities.

Kitt Peak Visitor Center
Summary of Visitors January – March 2000

<table>
<thead>
<tr>
<th>Group/Program</th>
<th>No. of Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>General public tours</td>
<td>6,546</td>
</tr>
<tr>
<td>School groups K-12</td>
<td>500</td>
</tr>
<tr>
<td>Special tours</td>
<td>589</td>
</tr>
<tr>
<td>Nightly Observing Program</td>
<td>1,289</td>
</tr>
<tr>
<td>Advanced Observing Program</td>
<td>44</td>
</tr>
<tr>
<td>Total Visitors</td>
<td>8,968</td>
</tr>
</tbody>
</table>
• Twenty-five members of the Board of Trustees for the Planetary Science Institute and their families toured the 1.3-meter and the mountain facility.

• A group visiting southwestern observatories toured the Mayall 4-meter and WIYN telescopes.

• Christy Yebra (Pima Community College, Tucson, Arizona) interviewed an NOAO Engineering and Technical Services staff member and filmed the interior and exterior of the 0.9-meter and WIYN telescopes for a video to be shown at the “Best of Pima 2000” awards ceremony, which highlights Pima College graduates who are making a difference in their workplace.

• Scott Thompson (KOTV/CBS, Tulsa, Oklahoma) interviewed a Public Outreach staff member and filmed the Kitt Peak Visitor Center and Observatory for a TV story on the effects of light pollution on astronomy and the public’s enjoyment of the night sky. The program aired in two segments on the late-night news.

• Public Outreach personnel attended a meeting of the Southwestern Consortium of Observatories for Public Education (SCOPE) held at the VLA in Socorro, NM.

In January, the Kitt Peak Visitor Center Observatory hosted 20 people for a special night of stargazing at the regular Nightly Observing Program — with an added bonus of the total lunar eclipse.

• Adam Block, Lead Observer for the Nightly Observing and Advanced Observing Programs at the Visitor Center Observatory, together with Andy Fisher, a guest who participated in the Advanced Observing program, were awarded the “Image of the Month” for February by the Santa Barbara Instrument Group (see cover and http://www.sbig.com/sbwhtmls/gallery.htm).
Educational Outreach Activities

NOAO Educational Outreach is responsible for information requests, scientific press and media relations, and educational outreach programs. Highlights for this quarter include:

**Educational Programs**

- Funding to support NOAO's leadership role of Project ASTRO for the next three years was received in March from the NSF/AST Division.

- NOAO-Tucson, in its role as the first Chair of the National Project ASTRO Network, will host the first annual Site Leaders Meeting 27-29 April in Tucson.

- NOAO Outreach Astronomer Travis Rector presented a poster paper on the discovery of 73 novae in the Andromeda Galaxy by RBSE participants at the January AAS Meeting in Atlanta.

- "Project ASTRO the Tucson Way," an informative article written by Ginny Beal, Program Coordinator for Project ASTRO-Tucson, was published in the January-February 2000 issue of *Mercury* magazine.

- Recruitment for the Summer 2000 Research Based Science Education (RBSE) program resulted in applications from 44 qualified teachers; of these, 16 were selected to participate.
• Dr. Wayne Sukow, RBSE Program Director for the NSF Education and Human Resources Directorate, made a site visit to RBSE-Tucson in January.

• Brenda Wolpa gave a presentation on “Research Based Science Education with the HST” at the January AAS Meeting. Brenda’s part-time employment on this project at NOAO is funded through an STScI HST CY 8 E/PO Supplement.

• One hundred twenty-eight undergraduates applied to the NSF-funded Research Experiences for Undergraduates (REU) Summer program at KPNO; of these, 8 students were selected to participate.

• Four students took part in the NSF-funded REU program held at CTIO from 17 January – 24 March. The students will present the results of their research projects at either the June 2000 or the January 2001 meeting of the American Astronomical Society (see http://www.ctio.noao.edu/REU/reu.html for details).

![Photo/Imaging Service](Image)

Six display posters were produced for the January AAS Meeting. A stunning color poster of the Rosette Nebula also produced by NOAO was recently published on the cover of the Astronomical Society of the Pacific’s mail order catalog and is being sold through the Society catalog.

• Twenty new images were added to the NOAO Image Gallery, bringing to 590 the number of images available on-line at http://noao.edu/image_gallery/.
• NOAO and STScI collaborated on the production of both a ground-based and a space-based (HST) image of NGC 1999 for the March Hubble Heritage release.

This image of NGC 1999 was captured by NOAO astronomers at the NSF's 0.9-m telescope on Kitt Peak using NOAO's new Mosaic camera, which obtains high-resolution images over a large field of view.

For more information, see http://www.noao.edu, Current Science, Latest Images.

Media

• NOAO issued three press releases this quarter, two of which are shown below.

Students Help Astronomers Discover 73 Novae in Andromeda Galaxy, which is the product of an NSF-funded RBSE Teacher Enhancement Program, was presented at the January 2000 AAS Meeting.

8.1-Meter Mirror Crosses Oceans to Reach Gemini Telescope describes the transatlantic journey of the mirror and its safe arrival at the Gemini South Observatory on Cerro Pachón in Chile.

Full text and images are available at http://www.noao.edu/outreach/press.
• Tucson television station Channel 9 interviewed Dr. Mark Giampapa on the subject of solar activity.

**Web Pages**

• New materials added to the NOAO Outreach web pages include: seven articles, with images, that discuss current Science Highlights and a *Latest Images* page featuring the NGC 1999 image produced with the Hubble Heritage Team.

The Index for current Science Highlights may now be accessed from the NOAO homepage at http://www.noao.edu/.

• Separate style sheets were implemented so that Web pages look good on all platforms—PC, Mac, and UNIX.

**Science Information and Image Requests**

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
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<tbody>
<tr>
<td>&quot;Discover Your Universe&quot; brochures mailed</td>
<td>1,300</td>
</tr>
<tr>
<td>Requests/inquiries about astronomy/science</td>
<td>197</td>
</tr>
<tr>
<td>(by telephone, letter, e-mail)</td>
<td></td>
</tr>
<tr>
<td>Requests/inquiries re NOAO images **</td>
<td>98</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,595</strong></td>
</tr>
</tbody>
</table>

**These numbers do not include images downloaded from the NOAO Image Gallery**
## Personnel and Visitor Data

### Hired

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<th>Date</th>
<th>Name</th>
<th>Position</th>
<th>Division/Unit</th>
</tr>
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<tbody>
<tr>
<td>01/01/00</td>
<td>Christian Aguilar</td>
<td>Telescope Mech. 2</td>
<td>Gemini</td>
</tr>
<tr>
<td>02/16/00</td>
<td>George J. Luis</td>
<td>Senior Engineer</td>
<td>SOLIS</td>
</tr>
<tr>
<td>03/01/00</td>
<td>Jorge A. Briones</td>
<td>Telescope Mech. 1</td>
<td>CTIO</td>
</tr>
<tr>
<td>03/06/00</td>
<td>Ed Hileman</td>
<td>Senior Engineer</td>
<td>ETS</td>
</tr>
<tr>
<td>03/20/00</td>
<td>Gerald T. Penegor</td>
<td>Senior Engineer</td>
<td>ETS</td>
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### Completed Employment

<table>
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<th>Position</th>
<th>Division/Unit</th>
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<tbody>
<tr>
<td>01/31/00</td>
<td>Jorge Briones E.</td>
<td>Lead Telescope Mech.</td>
<td>CTIO</td>
</tr>
<tr>
<td>02/11/00</td>
<td>Albert Fowler</td>
<td>Engineering Manager</td>
<td>ETS</td>
</tr>
<tr>
<td>03/03/00</td>
<td>Gerald Cecil</td>
<td>SOAR Project Scientist</td>
<td>SOAR</td>
</tr>
<tr>
<td>03/04/00</td>
<td>Charles Harmer</td>
<td>Senior Engineer</td>
<td>KPNO</td>
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<tr>
<td>03/24/00</td>
<td>David S. Porter</td>
<td>Engineering Supervisor</td>
<td>SOAR</td>
</tr>
<tr>
<td>03/31/00</td>
<td>María T. Acevedo</td>
<td>Assistant Observer 1</td>
<td>CTIO</td>
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### Changed Status

<table>
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<th>Date</th>
<th>Name</th>
<th>Position</th>
<th>Division/Unit</th>
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</thead>
<tbody>
<tr>
<td>01/01/00</td>
<td>Nelson Saavedra</td>
<td>Computer Progr. 2</td>
<td>CTIO to Gemini</td>
</tr>
<tr>
<td>01/20/00</td>
<td>Phil Massey</td>
<td>Sabbatical (1/20/00 through 5/1/00)</td>
<td>NOAO</td>
</tr>
<tr>
<td>02/01/00</td>
<td>Robert Schommer</td>
<td>Appointed Associate Director of NOAO for Gemini</td>
<td>USGP</td>
</tr>
<tr>
<td>02/01/00</td>
<td>Caty Pilachowski</td>
<td>Appointed Deputy Director of the US Gemini Program</td>
<td>USGP</td>
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<tr>
<td>02/01/00</td>
<td>Taft Armandroff</td>
<td>Appointed US Gemini Project Manager</td>
<td>USGP</td>
</tr>
<tr>
<td>02/01/00</td>
<td>Rolando Rogers</td>
<td>Sr. Electronics Engineer</td>
<td>CTIO to Gemini</td>
</tr>
<tr>
<td>02/01/00</td>
<td>Pedro Gigoux</td>
<td>Computer Progr. 1</td>
<td>CTIO to Gemini</td>
</tr>
<tr>
<td>02/01/00</td>
<td>Eduardo Huanchicay</td>
<td>Lead Telescope Mech.</td>
<td>CTIO</td>
</tr>
<tr>
<td>02/13/00</td>
<td>Buell Jannuzi</td>
<td>Promoted from Ass’t Astronomer to Assoc. Astronomer</td>
<td>NOAO</td>
</tr>
<tr>
<td>03/01/00</td>
<td>Andrés Montané</td>
<td>Sr. Engineer Manager</td>
<td>CTIO</td>
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<tr>
<td>03/01/00</td>
<td>Patricio Ugarte</td>
<td>Observer Support 3</td>
<td>CTIO</td>
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<tr>
<td>03/01/00</td>
<td>Steve Heathcote</td>
<td>On sabbatical until 03/31/00</td>
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### Leave without Salary (transferred from CTIO)

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<th>Name</th>
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<tr>
<td>06/14/99</td>
<td>Germán Schumacher</td>
<td>Computer Progr.</td>
<td>CTIO to SOAR</td>
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</table>
Visiting Scientists (one month or longer)

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<th>Date</th>
<th>Name</th>
<th>Institution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/08/99</td>
<td>Eric Rubenstein</td>
<td>Yale University</td>
<td>CTIO</td>
</tr>
<tr>
<td>12/01/99</td>
<td>Fernando Santoro</td>
<td>SOAR, Brazil</td>
<td>AURA-O</td>
</tr>
<tr>
<td>03/08/00</td>
<td>Xiang-Tao He</td>
<td>Beijing Normal University</td>
<td>KPNO</td>
</tr>
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</table>

Chilean Economic Statistics

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<th>2/00</th>
<th>3/00</th>
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<tr>
<td>CPI Change</td>
<td>0.2%</td>
<td>0.6%</td>
<td>0.7%</td>
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<tr>
<td>Cum. Change in CPI FY 2000</td>
<td>1.0%</td>
<td>1.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Avg. Monthly Peso/Dollar Rate</td>
<td>520.73</td>
<td>511.44</td>
<td>504.70</td>
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<tr>
<td>Monthly Dollars Changed</td>
<td>$910,000</td>
<td>$580,000</td>
<td>$660,000</td>
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NSF Foreign Travel Fund

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<tr>
<th>Quarter Ending</th>
<th>Amount</th>
<th>Foreign Institution Visited</th>
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<tbody>
<tr>
<td>3/31/00</td>
<td>$4,782.88</td>
<td>Nordic Optical Telescope, Norway</td>
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<tr>
<td></td>
<td></td>
<td>Las Campanas Observatory, Chile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anglo-Australian Telescope, Australia</td>
</tr>
</tbody>
</table>
APPENDIX A
CERRO TOLOLO INTER-AMERICAN OBSERVATORY

January – March 2000: Sixty-one scientific programs, including 11 thesis programs, were carried out at CTIO this quarter. Students are indicated by a (T) for thesis students, (G) for non-thesis graduate students, and (U) for undergraduate students. The telescope used and nights assigned (hours worked) are specified. Service Observing programs are denoted by S.O. instead of nights assigned.

US/Foreign Thesis Programs (11)

I. Ivans (T), C. Sneden (University of Texas, Austin), T. Beers (Michigan State University): “Chemical Evolution of the Halo and Disk of the Galaxy”. 6(55.25)4-m

M. Jarvis (T), G. Bernstein, P. Fischer (University of Michigan), A. Tyson (Bell Laboratories): “Large-Scale Dark Matter Structure via Weak Lensing”. 6(49.25)4-m

D. Leeber (T), T. Harrison, B. McNamara (New Mexico State University): “The Infrared Ellipsoidal Variations of Soft X-Ray Transients: Measuring the Mass of the Black Hole Primary”. 2(20)4-m

A. Mahdavi (T), M. Geller (Harvard-Smithsonian Center for Astrophysics): “BRI Photometry of X-Ray Emitting Galaxy Groups”. 10(76.5)CS

D. Minniti (Universidad Católica de Chile), W. van Breugel, W. de Vries (Lawrence Livermore National Laboratory), M. Reuland (T) (University of Leiden, The Netherlands): “Probing the Early Universe with Radio Sources”. 3(33.25)4-m

S. Points (T), Y.-H. Chu, R. Gruendl (University of Illinois), C. Smith (CTIO): “Physical Structure of Supergiant Shells in the LMC”. 3(28.5)4-m

W. Sherry (T), F. Walter (State University of New York), S. Wolk (Harvard-Smithsonian Center for Astrophysics): “Sub-Clustering Among the Low Mass Members of the Orion OB1b Association II”. 5(47.75)0.9-m

N. Smith (T), K. Davidson, R. Gehrz, R. Humphreys (University of Minnesota): “IR Spectroscopy of Eta Carinae”. 3(30)4-m, 1(10.5)1.5-m, 1(8)CS

L. Strolger (T) (University of Michigan), C. Smith, N. Suntzeff, R. Schommer, R. Covarrubias (CTIO), M. Phillips (Las Campanas Observatory, Chile), L. Ho (Carnegie Observatories), E. Rubenstein (Yale University), M. Hamuy (University of Arizona), A. Cool (Universidad Católica de Chile), J. Maza (Universidad de Chile), J. Seguel (U)(Universidad de Concepción, Chile): “Wide-Field Low-z SN Search with the NOAO Mosaic”. 1(11.5)0.9-m, 8(74)CS

D. Wittman, A. Tyson, D. Kirkman, V. Ellinger (T) (Bell Laboratories), I. Dell’Antonio (KPNO), R. Schommer (CTIO): “Density Profiles of Massive Clusters at Large Radii”. 1(11)4-m

H. Yee, M. Gladders (T), P. Hall (University of Toronto, Canada), E. Ellingson (University of Colorado), F. Barrientos, L. Infante, J. Fernández (U) (Universidad Católica de Chile), T. Kodama (Durham University, UK): “A Wide-Field High-Redshift Galaxy Cluster Survey”. 3(28)4-m

US/Foreign Investigator Programs (50)

C. Anguita, M.T. Ruiz, P. Loyola (Universidad de Chile): “CCD Parallaxes for Cool Degenerates”. 3(27)1.5-m
APPENDIX A: CTIO Observing Programs

T. Armandroff, G. Jacoby (NOAO), J. Chen (U) (Yale University): “Dwarf Galaxies at the Edge of the Local Group”. 7(69)1.5-m

F. Barrientos, J. Cuadra (U) (Universidad Catolica de Chile), M. Sawicki (California Institute of Technology): “Galaxy Evolution at 1 < z < 3”. 3(30)4-m

A. Crotts, S. Lawrence (Columbia University), P. Bouchet, S. Heathcote, N. Suntzeff (CTIO), R. McCray (University of Colorado at Boulder), M. Phillips (Las Campanas Observatory, Chile): “Evolution of SN 1987A into a Supernova Remnant: IR/Optical Spectroscopy”. 1(9.5)4-m

D. DePoy , A. Stephens (G), C. Burke (G)(Ohio State University): “A Survey of the LMC for Regions of Obscured Star Formation”. 8(65.5)1.5-m

H. Ebeling, C. Mullis (G), B. Tully (University of Hawaii): “Closing the Gap: An X-Ray Selected Sample of Clusters of Galaxies behind the Galactic Plane”. 2(19.5)1.5-m

D. Geisler, J. Seguel (U) (Universidad de Concepcion, Chile), E. Grebel (University of Washington), J. Holtzman (New Mexico State University), A. Sarajedini (Wesleyan University): “The Large-Scale Star Formation and Chemical Enrichment History of the Sextans Dwarf Spheroidal Galaxy”. 2(21)4-m

D. Geisler (Universidad de Concepcion, Chile), A. Kundu (University of Virginia): “Globular Clusters in S0 Galaxies”. 1(10)4-m

W. Gieren (Universidad de Concepcion, Chile), J. Storm (Astrophysikalisches Institut Potsdam, Germany), P. Fouque (European Southern Observatory, Chile): “An Accurate Distance to the LMC from Cepheid Variables in the Cluster NGC 2031”. 4(37)4-m, 4(36.25)1.5-m


E. Guinan, L. DeWarf, E. Fitzpatrick, F. Maloney (Villanova University), V. Niemela (Universidad Nacional de La Plata, Argentina), I. Ribas (G) (University of Barcelona, Spain): “Calibrating the Cosmic Distance Scale: An Accurate Distance to the LMC Using Eclipsing Binaries”. 6(50.3)4-m

S. Heathcote, P. Bouchet, N. Suntzeff (CTIO), A. Crotts (Columbia University), M. Phillips (Las Campanas Observatory, Chile): “Evolution of SN 1987A into a Supernova Remnant: IR Imaging”. 1(11)4-m

T. Henry (Harvard-Smithsonian Center for Astrophysics), C. Anguita, M.T. Ruiz (Universidad de Chile), P. Ianna (University of Virginia), R. Mendez (CTIO), P. Seitzer (University of Michigan): “In Search of Nearby Stars: A Parallax Program at CTIO”. 6(56.5)1.5-m, 13(122.5)0.9-m

D. Hoard, S. Wachter (CTIO): “Double Degenerate Binary Stars: Constraining the Masses of Compact Objects”. 2(18)0.9-m

D. Hoard, S. Wachter (CTIO), A. Landolt (Louisiana State University), A. Bonacic (U) (Universidad Catolica de Chile), J. Bright (U) (Mesa State College): “A Population Census of the Open Cluster NGC 3532”. 11(102)0.9-m

J. Huchra, J. Mader (Harvard-Smithsonian Center for Astrophysics), S. Schneider, M. Skrutskie (University of Massachusetts), T. Jarrett, T. Chester, R. Cutri (California Institute of Technology): “The 2MASS Redshift Survey”. 5(50.5)1.5-m

R. Jayawardhana (G), P. Garnavich (Harvard-Smithsonian Center for Astrophysics): “Probing the Nearest Pre-Main-Sequence Open Cluster: A Deep Optical and Near-Infrared Survey of η Cha”. 3(29.49)1.5-m
APPENDIX A: CTIO Observing Programs

P. Knezeck (Johns Hopkins University), R. Webster, V. Kilborn (G) (University of Melbourne, Australia), R. Minchin (G), D. Zambonini (G), M. Disney (University of Wales at Cardiff, UK): “Optical Follow-up of HIPASS Sources: Characterizing the Local Universe”. 15(143)CS

A. Landolt (Louisiana State University): “UBVRI Photoelectric Photometric Sequences”. 10(91.5)1.5-m

S. Lawrence, A. Crotts, B. Sugerman (G) (Columbia University), S. Heathcote (CTIO): “A Three-Dimensional Study of the Circumstellar Environments of SN 1987A”. 3(27.75)4-m

J.-W. Lee (G), B. Carney (University of North Carolina): “The Oosterhoff Dichotomy as a Signature of Different Halo Formation Histories”. 2(19.5)0.9-m

S. Lepine (Space Telescope Science Institute), A. Moffat (Université de Montréal, Canada): “Is Clumping Universal in Hot Star Winds?” 3(30)4-m

K. Long (Space Telescope Science Institute), F. Winkler (Middlebury College), C. Smith (CTIO): “Infrared Spectra and Imaging of Magellanic Cloud Supernova Remnants”. 6(56.91)1.5-m

S. Majewski, R. Patterson, J. Ostheimer (G), J. Crane (G), J. Alltop (G) (University of Virginia), W. Kunkel (Las Campanas Observatory, Chile), K. Johnston (Institute for Advanced Study): “The Carina dSph: Another Sagittarius?”. 8(84.8)4-m

C. Martin, B. Kern (T), B. Mazin (G), S. Kaye, D. Schiminovic (California Institute of Technology), J. Halpern (Columbia University): “Phase-Binned Polarization of Vela and PSR 0540-69”. 3(26.5)4-m

M. Pedreros (Universidad de Tarapacá, Chile): “Proper Motion of the Large Magellanic Cloud”. 2(20)1.5-m

S. Perlmutter, G. Aldering, P. Nugent, R. Knop, G. Goldhaber, B. Frye, D. Groom (University of California, Berkeley): “Physical and Standard Candle Properties of Type Ia Supernovae from a Large Nearby Sample to Calibrate Distance Measurements”. 4(40)1.5-m

I. Platais, T. Girard, W. van Altena (Yale University), D. Geisler (Universidad de Concepción, Chile): “Deep Astrometry of Key Open Clusters”. 1(10.5)4-m

F. Pont, C. Gallart (Universidad de Chile): “Metallicity Distribution and Star Formation History of the Carina dSph Galaxy”. 1(9.5)4-m

F. Pont, M.T. Ruiz, C. Anguita (Universidad de Chile), W. van Altena, R. Guzmán, S. Zepf (Yale University), R. Méndez (CTIO), C. Lidman (European Southern Observatory, Chile): “A Large-Volume Survey of Halo White Dwarfs”. 2(22.5)4-m

B. Rauscher, R. Sharples (Durham University, UK), J. Lloyd (G) (University of California, Berkeley): “A Study of Near-Infrared Sky Noise for Multi-Object Spectroscopic Surveys”. 2(13.16)1.5-m

M.T. Ruiz, M. Wischnjewsky, P. Rojo (Universidad de Chile): “Luminosity Function of Cool Degenerates”. 2(19)1.5-m, 8(67.5)0.9-m

R. Smith (Universidad Católica de Chile), J. Lucey, S. Moore (G) (Durham University, UK): “Faint Multi-Band MOSAIC Survey of the Centaurus Cluster”. 1(11.5)4-m
APPENDIX A: CTIO Observing Programs

N. Suntzeff, P. Candia (CTIO), B. Schmidt (Mount Stromlo & Siding Spring Observatories), A. Clocchiatti (Universidad Católica de Chile): “Calibration of Local Standards in High-z Supernova Fields”. 4(39)1.5-m

A. Tyson, D. Wittman, D. Kirkman, G. Kochanski, V. Ellinger (G) (Bell Laboratories), G. Bernstein (University of Michigan), I. Dell’Antonio, T. Lauer (KZNO), T. Broadhurst (University of California, Berkeley), R. Cen (Princeton University), J. Cohen, G. Squires (California Institute of Technology), A. Gonzalez, R. Guhathakurta (University of California, Santa Cruz), W. Hu (University for Advanced Study), N. Kaiser (University of Hawaii), J. Miralda-Escude (University of Pennsylvania), R. Schommer (CTIO), D. Spergel (Princeton University), C. Stubbs, A. Becker (G) (University of Washington): “Deep Lens Survey”. 6(60)4-m

S. Wachter, D. Hoard (CTIO), T. Tavener (U) (University of Washington), B. Johnson (U) (University of California, Los Angeles): “Pre-Main Sequence Binaries in the Vela Molecular Ridge”. 14(130)0.9-m

S. Wachter (CTIO), B. Bandyopadhyay (Naval Research Laboratory), M. Blackburn (U) (Western Virginia University): “An IR Survey of X-Ray Binaries: Characterizing the IR Emission of Accretion Disks”. 3(29)1.5-m

A. Walker (CTIO), E. Brocato (Osservatorio Astronomico di Collurania, Italy), F. Caputo (Osservatorio Astronomico di Capodimonte, Italy), H. Smith (Michigan State University), Vittorio Castellani (Universite di Pisa, Italy): “Photometry of Variable Stars in the Carina Dwarf Galaxy”. 2(17.75)4-m

A. Walker (CTIO): “Photometric Calibration of HST Fields”. 1(8)0.9-m

G. Wallerstein (University of Washington), A. Vanture (Everett Community College): “The Chemical Composition of the S-Stars in Omega Centauri”. 7(68.5)1.5-m

R. Walterbos, M. Bransford (New Mexico State University), G. Bothun (University of Oregon), E. de Blok (University of Melbourne, Australia): “Deep H-Alpha Imaging of Low Surface-Brightness Galaxies”. 7(68)0.9-m

B. Welsh, S. Jelinsky, N. Craig (University of California, Berkeley), R. Lallement (Centre National de la Recherche Scientifique, France): “Monitoring Beta Pictoris-like Circumstellar Gas Disks”. 3(16.16)1.5-m

J. Willick (Stanford University), M. Hudson (University of Victoria, Canada), J. Lucey, R. Davies (Durham University, UK), D. Schade (Dominion Astrophysical Observatory, Canada), R. Smith (Universidad Católica de Chile), N. Suntzeff (CTIO), G. Wegner (Dartmouth College): “A Fundamental Plane Peculiar Velocity Survey of Rich Clusters within 200 h^1 Mpc”. 2(22)4-m

A. Wilson (University of Maryland), T. Storchi-Bergmann (Universidade Federal do Rio Grande do Sul, Brazil), S. Morris (Dominion Astrophysical Observatory, Canada): “Imaging the Obscuring Torus in Nearby Active Galaxies”. 3(20.5)4-m

F. Winkler, E. Galle (G) (Middlebury College), K. Long (Space Telescope Science Institute), C. Smith (CTIO): “UV Lightbulbs to Probe Supernova Remnants in the LMC”. 3(29)0.9-m

N. Zacharias, T. Rafferty, K. Johnston, M. Zacharias (US Naval Observatory): “Establishing an Extragalactic Reference Frame Link for the UCAC-S Project and Improving the Hipparcos System Rotation Link to the ICRS”. 4(40)0.9-m

MICHIGAN Program. P. Seitzer, J. A. Smith (University of Michigan). 13(117.5)CS

REU & PIA Program. D. Hoard (CTIO), T. Tavener (University of Washington), M. Blackburn (West Virginia University), J. Bright (Mesa State College, Colorado), B. Johnson (University of California, Los Angeles), J. Seguel (Universidad de Concepción, Chile), A. Bonacic (Universidad Católica de Chile). 6(54)CS

SSTO Program (Synoptic, Service, & Target of Opportunity Program). 12(117.5)0.9-m
January - March 2000: During this period, 97 scientific programs, 18 of which were thesis programs, were carried out. Graduate and undergraduate students are indicated by a (T) for thesis students, (G) for non-thesis graduate students and (U) for undergraduate students.

US/Foreign Thesis Programs (18)

The Effect of Spiral Galaxy Asymmetry On Tully-Fisher Scatter
D. Andersen (T), M. Bershady, S. Gallagher (G) (Pennsylvania State University) 2.1m 4n (21 hrs)

A Lithium Survey for Young Stars in the (Lambda) Orionis Star Forming Region
C. Dolan (T), R. Mathieu (University of Wisconsin) WIYN Queue(7.5 hrs)

The Infrared Ellipsoidal Variations of Soft X-Ray Transients: Measuring the Mass of the Black Hole Primary
D. Leeber (T), T. Harrison, B. McNamara (New Mexico State University) 2.1m 4.5n (28 hrs)

Deep K-Band Imaging in Sub-Mm Survey Fields
S. Lilly, T. Webb (T), M. Brodwin (T) (University of Toronto) 4m 3.5n (42 hrs)

IR Spectroscopy of T Tauri Stars in Support of HST Observations
Y. Liu (T), F. Walter (SUNY at Stony Brook), J. Valenti (National Optical Astronomy Observatories), C. Johns-Krull (University of California, Berkeley), A. Brown (University of Colorado), G. Gahm (Stockholm Observatory), M. Simon (SUNY at Stony Brook) 2.1m 4n (31 hrs)

Bri Photometry of X-Ray Emitting Galaxy Groups
A. Mahdavi (T), M. Geller (Harvard-Smithsonian Center for Astrophysics) CF (12 hrs)

A Search for Young S0's in Nearby Clusters
D. McIntosh (T) (University of Arizona), H. Rix (Max Planck Instutit fur Astronomie), N. Caldwell (Smithsonian Astrophysical Observatory) 0.9m 3n (17 hrs)

Measuring the Mass of the Coma Cluster by Weak Gravitational Lensing
T. McKay, E. Sheldon (T) (University of Michigan), J. Frieman (Fermi National Accelerator Laboratory), M. Joffre (G) (University of Chicago), P. Fischer (University of Michigan), R. Nichol (Carnegie Mellon University) 4m 3n (34.5 hrs)

A Survey for Distributed Star Formation in the Rosette Molecular Cloud
A. Muench (T) (Harvard-Smithsonian Center for Astrophysics), E. Lada (University of Florida), R. Phelps (California State University, Sacramento), D. Dahari (G) (University of Florida) 2.1m 6n (57 hrs)

Searching for Additional Heating - IO III Line Ratios in the Diffuse Ionized Gas
B. Otte (T), J. Gallagher, R. Reynolds (University of Wisconsin, Madison), A. Ferguson (University of Cambridge) 2.1m 6n (47 hrs)

Absolute Properties of Binary Stars
J. Sabby (T), C. Sandberg Lacy (University of Arkansas) CF 7n (36 hrs)

Absolute Properties of Binary Stars
J. Sabby (T), C. Sandberg Lacy (University of Arkansas) CF 7n (87.5 hrs)
**APPENDIX B: KPNO Observing Programs**

**Wide-Field Low-Z Sn Search With the NOAO Mosaic**

L. Strolger (T) (University of Michigan), R. Smith, N. Suntzeff, R. Schommer (National Optical Astronomy Observatories), M. Phillips (Las Campanas Observatory), L. Ho (Carnegie Observatories), E. Rubenstein (CTIO), M. Hamuy (G) (University of Arizona), R. Covarrubias (National Optical Astronomy Observatories), A. Clochiatelli (Pontificia Universidad Catolica de Chile), J. Maza (Universidad de Chile), J. Seguel (U) (Universidad de Concepcion), P. Challis (Harvard-Smithsonian Center for Astrophysics), A. Soderberg (G) (Bates College), P. Candia (CTIO), T. Bowers (University of Arizona)

- **0.9m 16n (131.5 hrs)**

**Large Kuiper Belt Objects**

C. Trujillo (T) (University of Hawaii), J. Luu (Leiden University), J. Elliot (Massachusetts Institute of Technology), A. Bosh (Lowell Observatory)

- **WIYN Queue (7.3 hrs)**

**Large Kuiper Belt Objects**

C. Trujillo (T) (University of Hawaii), J. Luu (Leiden University), J. Elliot (Massachusetts Institute of Technology), A. Bosh (Lowell Observatory), N. Evans (Oxford University)

- **0.9m 6n (22 hrs)**

**Too Gamma-Ray Burst Counterpart Observations**

J. van Paradijs (University of Alabama), C. Kouveliotou (NASA Marshall Space Flight Center), P. Vreeswijk (T), T. Galama (T), N. Suntzeff (National Optical Astronomy Observatories), K. Hurley (University of California), T. Murakami (Institute of Space and Astronautical Science), G. Pendleton, M. Kippen (University of Alabama), A. Levine (Massachusetts Institute of Technology), J. Heise (Space Research Organization), J. Swank (Goddard Space Flight Center), J. Greiner (Astrophysikalisches Institut Potsdam), E. Rol (T) (University of Amsterdam), V. Connaughton (National Research Council)

- **WIYN Queue (2.7 hrs)**

**A Study of the Duplicity of the He-Rich Hot Subdwarfs of the Pq Survey.**

T. Williams (T), J. McGraw, R. Grashius (University of New Mexico)

- **2.1m 5n (33 hrs)**

**Wide-Field Medium-Band Hdf Imaging at 0.8-1.0\(\mu m\): Galaxy Evolution at Z-l-7 With Improved Photometric Redshifts.**

R. Windhorst (Arizona State University), W. Keel (University of Alabama), H. Yan (T), S Cohen (G), S. Odewahn, I. Waddington (Arizona State University)

- **0.9m 3n (19 hrs)**

**US/Foreign Investigator Programs (79)**

**How Are Disk Lines Formed Around Rapidly Rotating a-Type Stars?**

H. Abt, D. Willmarch (National Optical Astronomy Observatories)

- **CF 4n (48 hrs)**

**How Are Disk Lines Formed Around Rapidly Rotating a-Type Stars?**

H. Abt, D. Willmarch (National Optical Astronomy Observatories)

- **CF 4n (42.5 hrs)**

**Number Ratio of Absorbed to Non-Absorbed AGNs/QSOs in the Intermediate Redshift Universe**

M. Akiyama (G), K. Ohta (University of Kyoto), T. Yamada (Tohoku University), Y. Ueda, T. Takahashi (Institute of Space and Astronautical Science)

- **2.1m 4n (20 hrs)**

**Stellar Comospheres**

T. Ayres (University of Colorado), G. Wiedemann (European Southern Observatory)

- **0.9m (18 hrs)**

**A Search for Quiescent Black Hole Binaries**

C. Bailyn, R. Jain (G) (Yale University), J. Orosz (Pennsylvania State University)

- **0.9m 5n (54.5 hrs)**
APPENDIX B: KPNO Observing Programs

**Time Trade: Variability in the Light Curve of the Black Hole Binary GRO J0422+32**
C. Bailyn (Yale University) WIYN Queue (3.5 hrs)

**Deep Imaging Survey of Nearby Star-Forming Clouds**
J. Bally, B. Reipurth, S. Heathcote (University of Colorado) 0.9m 4n (44 hrs)

**Stellar Populations and Dust in Galaxies in Close Pairs: Measuring the Impact of Interactions**
E. Barton (Dominion Astrophysical Observatory), S. Kenyon, M. Geller (Harvard-Smithsonian Center for Astrophysics) 2.1m 6n (43.5 hrs)

**Spectroscopic Observations of Distant Horizontal-Branch Stars in the Halo of the Galaxy**
T. Beers (Michigan State University), N. Christlieb (G) (Universitat Hamburg), J. Sommer-Larsen (Niels Bohr Institute), S. Rossi (Universidade de Sao Paolo), R. Wilhelm (University of Texas, Austin) 4m 2n (25 hrs)

**The Metallicity Dependence of the Cepheid Period-Luminosity Relation**
D. Bersier (Research School of A & A), J. Mould, P. Wood (Mt. Stromlo & Siding Spring Observatory), J. Hoessel (University of Wisconsin) WIYN Queue (1.1 hrs)

**Near-Earth Objects: a Compositional and Exploration Assessment**
R. Binzel, S. Bus (Massachusetts Institute of Technology) 4m 2n (14 hrs)

**Optical Spectrophotometry of FUSE AGN Targets**
M. Brotherton, R. Green (National Optical Astronomy Observatories), G. Kriss (Space Telescope Science Institute), W. Zheng (Johns Hopkins University) 2.1m 4.5n (41.5 hrs)

**Monitoring the Surface Volatiles On Pluto and Triton**
M. Buie, W. Grundy (Lowell Observatory) 2.1m 5.5n (56.5 hrs)

**The Structure of Starburst Galaxies**
D. Calzetti, D. Smith (Space Telescope Science Institute), J. Gallagher (University of Wisconsin), C. Leitherer, C. Martin (Space Telescope Science Institute), N. Homeier (G) (University of Wisconsin) 2.1m 7.5n (76 hrs)

**Extreme Velocity Stars: the Early Galaxy, Merger Events, or Binary Disruption?**
B. Carney (University of North Carolina, Chapel Hill), J. Laird (Bowling Green State University), D. Latham (Harvard-Smithsonian Center for Astrophysics), I. Ivans (G) (University of Texas, Austin) 4m 4.5n (61.5 hrs)

**Gravitational Lensing and Sz: the Gas and Dm Distribution in Clusters**
I. Dell’Antonio (National Optical Astronomy Observatories), J. Carlstrom (University of Chicago), J. Tyson (AT&T Bell Laboratories), M. Joy (NASA Marshall Space Flight Center), D. Wittman (AT&T Bell Laboratories), V. Ellinger (G) (Princeton University) 4m 3.5n (36.5 hrs)

**Gravitational Lensing and Sz: the Gas and Dm Distribution in Clusters**
I. Dell’Antonio (National Optical Astronomy Observatories), J. Carlstrom (University of Chicago), J. Tyson (Bell Labs, Lucent Technologies), M. Joy (NASA Marshall Space Flight Center), D. Wittman (Bell Labs, Lucent Technologies) 0.9m 2n (12.5 hrs)

**A Survey for Lensed Lyman Break Galaxies**
M. Dickinson (Space Telescope Science Institute), M. Pettini (Institute of Astronomy), P. Rosati (European Southern Observatory), M. Giavalisco (Space Telescope Science Institute), C. Steidel, K. Adelberger (G), A. Shapley (G) (California Institute of Technology) WIYN Queue (27.7 hrs)
APPENDIX B: KPNO Observing Programs

A First Measurement of the Local EUV Ionizing Background
M. Donahue (Space Telescope Science Institute), G. Aldering (University of California, Berkeley), J. Stocke, J. Tumlinson (G) (University of Colorado)

A Search for Extra-Solar Planet Transits
M. Everett, S. Howell, G. Esquerdo (U), C. Neese (Planetary Science Institute)

A Planetary Nebulae Distance to NGC 4258
J. Feldmeier (G), R. Ciardullo (Pennsylvania State University), G. Jacoby (National Optical Astronomy Observatories)

Cycles and Long-Term Variability in Solar-Type Stars
M. Giampapa (National Optical Astronomy Observatories), R. Radick (AFGL), J. Hall (Lowell Observatory), S. Baliunas (Harvard-Smithsonian Center for Astrophysics)

Cycles and Long-Term Variability in Solar-Type Stars
M. Giampapa (National Optical Astronomy Observatories)

Proper Motion Search for Nearby Machos
J. Gizis (University of Massachusetts)

Are Compact High Velocity Clouds the Missing Local Group Dwarf Satellites?
E. Grebel (University of Washington), R. Braun (Netherlands Fdn. for Research in Astronomy), B. Burton (Sterrewacht Leiden)

Optical Imaging Survey of Chandra Fields
P. Green, B. Wilkes, H. Tananbaum (Harvard-Smithsonian Center for Astrophysics), C. Foltz (University of Arizona), J. Baldwin (National Optical Astronomy Observatories), S. Mathur (Ohio State University), B. Jannuzi (National Optical Astronomy Observatories)

Developing a Network of Probes for the Icm and Igm
R. Green (National Optical Astronomy Observatories), X. He (Beijing Normal University)

The Star-Formation Rate of the Local Universe
C. Gronwall (Johns Hopkins University), J. Salzer, V. Sarajedini (Wesleyan University), T. Boroson (National Optical Astronomy Observatories)

A Deep Wide-Field Multi-Wavelength Survey in the Lockman Hole
J. Huang (Smithsonian Astrophysical Observatory), J. Stauffer, S. Willner, G. Fazio (Harvard-Smithsonian Center for Astrophysics), P. Eisenhardt (California Institute of Technology), M. Ashby (Smithsonian Astrophysical Observatory), D. Stern (T) (University of California, Berkeley)

Formation of Tidal Dwarf Galaxies in Compact Group Mergers
S. Hunsberger (Lowell Observatory), J. Charlon (Pennsylvania State University)

The Stellar Kinematics and Intrinsic Structure of Irregular Galaxies
D. Hunter (Lowell Observatory), V. Rubin (Carnegie Institution of Washington)

Supernovae at Late Times
R. Kirshner, P. Garnavich, S. Jha (G), P. Challis (Harvard Smithsonian Ctr. for Astrophys.), A. Soderberg (Bates College), G. Jacoby (National Optical Astronomy Observatories)

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## APPENDIX B: KPNO Observing Programs

### Supernova Light Curves
R. Kirshner, P. Garnavich, S. Jha (G) (Harvard-Smithsonian Center for Astrophysics), P. Challis (Harvard University)

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<th>Telescope</th>
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<tr>
<td>2.1m</td>
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### A Deep in Situ Study of the Thick Disk and Thin Disk Populations
J. Laird (Bowling Green State University), B. Carney (University of North Carolina, Chapel Hill), D. Ojha (Tata Institute of Fundamental Research), O. Bienayme (Observatoire de Strasbourg), A. Robin (Observatoire de Besancon)

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### Broad-Band Imaging of Star-Forming Galaxies at Z > 5
K. Lanzetta, H. Chen (G), S. Pascale, N. Yahata (G) (SUNY at Stony Brook)

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### Probing Interstellar Structure at the Smallest Scales
J. Lauroesch, D. Meyer, S. Cartledge (G) (Northwestern University)

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### Technetium and the 3rd Dredge Up
T. Lebzelter, J. Hron (University of Vienna)

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### Galaxies Near Distant Damped Ly(Alpha) Clouds
J. Lowenthal, N. Roche (University of Massachusetts), N. Bouche (University of Massachusetts at Amherst)

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### A Search for New Binaries Among O-Type Stars in Clusters
P. Massey (National Optical Astronomy Observatories), L. Penny (College of Charleston)

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### Searching for Substructure in the Galactic Halo - the Imaging Survey
M. Mateo, J. Arabadjis, R. Dohm-Palmer (University of Michigan), K. Freeman (Mt. Stromlo & Siding Spring Observatory), P. Harding (G) (University of Arizona), H. Morrison (Case Western Reserve University), J. Norris (Mt. Stromlo & Siding Spring Observatory), E. Olszewski (University of Arizona), C. Sneden (University of Texas, Austin)

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### Optical Rotation Curves of Low Surface Brightness Disk Galaxies
S. McGaugh (University of Maryland), V. Rubin (Carnegie Institution of Washington), E. De Blok (Australia Telescope National Facility)

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### Vignetting Determination for the Palomar and Uk Schmidt Cameras
B. McLean, J. Garcia (Space Telescope Science Institute), A. Spagna (Osservatorio Astronomico di Torino), J. Morrison, A. Rosenberg (Space Telescope Science Institute)

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### Discovery of Faint Kuiper Belt Objects With the MOSIAC Cameras
R. Millis, M. Buie (Lowell Observatory), R. Wagner (Ohio State University), J. Elliot (Massachusetts Institute of Technology), L. Wasserman (Lowell Observatory)

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### The Outer Halo - Halo Origins and Mass of the Galaxy
H. Morrison (Case Western Reserve University), J. Arabadjis, R. Dohm-Palmer (University of Michigan), K. Freeman (Mt. Stromlo & Siding Spring Observatory), P. Harding (G) (University of Arizona), M. Mateo (University of Michigan), J. Norris (Mt. Stromlo & Siding Spring Observatory), E. Olszewski (University of Arizona), C. Sneden (University of Texas, Austin)

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APPENDIX B: KPNO Observing Programs

Color Observations of Nuclei of Short Period Comets
B. Mueller, N. Samarasinha (National Optical Astronomy Observatories)  WIYN Queue(3.2 hrs)

‘fossil’ Groups of Galaxies - the End Point of Galaxy Merging?
J. Mulchaey (Carnegie Observatories), L. Jones, T. Ponman (University of Birmingham)  4m 3n (32 hrs)

Deciphering the Orion Nebula by Velocity Mapping
C. O’Dell, P. Hartigan (Rice University), T. Doi (NASA Johnson Space Flight Center), H. Doi ()  WIYN Queue(4.2 hrs)

How Was the Galactic Halo Formed? Quantifying Velocity Substructure in the Halo
E. Olszewski (University of Arizona), M. Mateo (University of Michigan), H. Morrison (Case Western Reserve University), P. Harding (G) (University of Arizona), R. Dohm-Palmer (University of Michigan)  WIYN Queue(54 hrs)

Hydra Observations of Radio Galaxies in A2125
F. Owen (National Radio Astronomy Observatory), M. Ledlow (University of New Mexico), W. Keel (University of Alabama)  WIYN Queue(4.2 hrs)

Search for Low-Surface Brightness Tidal Features and Luminous Halos Around Isolated, Warped Spirals
C. Palma (G), A. Kundu, R. De Grijs, S. Majewski, J. Ostheimer (G) (University of Virginia)  0.9m 1n (1.5 hrs)

The Kuiper Belt Object Recovery Program
J. Parker (Southwest Research Institute)  2.1m 2n (12 hrs)

Physical and Standard Candle Properties of Type Ia Supernovae from a Large Nearby Sample to Calibrate Distance Measurements
S. Perlmutter, G. Aldering, P. Nugent, R. Knop, G. Goldhaber, B. Frye, A. Conely (G) (University of California, Berkeley)  4m 2n (10 hrs)

The Abundances of the Iron Group Elements in Early B Stars
G. Peters (University of Southern California), J. Grigsby (Ball Aerospace)  CF 6n (54 hrs)

Searching for Comets in NGC 2264
C. Pilachowski (National Optical Astronomy Observatories), A. Quillen (University of Arizona)  WIYN Queue(11.4 hrs)

Reconnaissance of Globular Cluster Giants
C. Pilachowski (National Optical Astronomy Observatories), C. Sneden (University of Texas, Austin), R. Kraft (University of California, Santa Cruz), I. Ivans (G) (University of Texas, Austin)  WIYN Queue(11.7 hrs)

Optical Substructure in Clusters Containing Wat Radio Galaxies
J. Pinkney (University of Michigan), T. Beers (Michigan State University)  0.9m 2n (23 hrs)

The Evolution of the Clustering of Galaxy Clusters
M. Postman (Space Telescope Science Institute), T. Lauer (National Optical Astronomy Observatories), W. Oegerle (Johns Hopkins University), R. Lynds (National Optical Astronomy Observatories)  4m 4.5n (22 rs)

The Evolution of the Clustering of Galaxy Clusters
M. Postman (Space Telescope Science Institute), T. Lauer (National Optical Astronomy Observatories), W. Oegerle (Johns Hopkins University), R. Kim (G) (Princeton University)  4m 3n (35 hrs)
### APPENDIX B: KPNO Observing Programs

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<td><strong>Chromospheric Activity in Mid- and Late-a Stars</strong></td>
<td>B. Rachford (University of Wyoming)</td>
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<td><strong>The Nova Rate in Galaxies of Different Hubble Type</strong></td>
<td>T. Rector, G. Jacoby, S. Jacoby (National Optical Astronomy Observatories), M. Denham (U)</td>
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<td><strong>A Coude Feed Stellar Spectral Library</strong></td>
<td>J. Rose (University of North Carolina, Chapel Hill), F. Valdes (National Optical Astronomy Observatories), R. Gupta (Inter-University Centre for Astronomy/Physics), H. Singh (Sri Venkateswara College), D. Bell (National Optical Astronomy Observatories), R. Reynolds (G) (University of North Carolina, Chapel Hill)</td>
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<td><strong>Variable Stars in Nearby Galaxies</strong></td>
<td>A. Saha (National Optical Astronomy Observatories), J. Hoessel (University of Wisconsin, Madison)</td>
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<td><strong>Baade-Wesselink Analysis of an Ensemble of M3 RR Lyrae Stars</strong></td>
<td>A. Saha, C. Pilachowski (National Optical Astronomy Observatories)</td>
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<td><strong>Precision Photometry of Key Open Clusters</strong></td>
<td>A. Sarajedini (Wesleyan University), C. Deliyannis (Indiana University), C. Bailyn (Yale University), R. Mathieu (University of Wisconsin, Madison), P. Demarque (Yale University)</td>
<td>0.9m</td>
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<td><strong>A Near-IR Spectroscopic Survey of the Central Regions of Field Ellipticals: Continued</strong></td>
<td>D. Silva (European Southern Observatory), G. Bohlin (University of Oregon)</td>
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<td><strong>Completion of a Large Survey of Activity in Solar-Type Stars</strong></td>
<td>D. Soderblom, J. King (Space Telescope Science Institute)</td>
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<td><strong>Doppler Imaging of Magnetically-Active Stars</strong></td>
<td>K. Strassmeier, M. Weber (G), A. Washuettl (G), T. Granzer (G), T. Pichler (U) (University of Vienna)</td>
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<td><strong>The Distribution of Dark Matter in Spiral Galaxies</strong></td>
<td>R. Swaters (Carnegie Institution of Washington), R. De Jong (University of Arizona)</td>
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<td><strong>Studying Star Formation in a Definitive Spiral Galaxy Sample for the Local Universe</strong></td>
<td>M. Thornley (National Radio Astronomy Observatory), M. Regan (Carnegie Institution of Washington), K. Sheth (G), S. Vogel (University of Maryland), T. Heifer (National Radio Astronomy Observatory), T. Wong (G) (University of California, Berkeley)</td>
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<td><strong>Radial Velocity Study of the New Unresolved Da/Dap Double Degenerate</strong></td>
<td>S. Vennes, L. Ferrario, D. Wickramasinghe (Australian National University), E. Polomski (G) (University of Florida)</td>
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<td><strong>Probing the Disk-Halo Connection Through the Local Interstellar Chimney</strong></td>
<td>B. Welsh (University of California, Berkeley), R. Lallement (Centre National de la Recherche Scientifique), D. Sfeir (T) (University of California, Berkeley)</td>
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<td><strong>High-Resolution Spectra of ls Absorption Lines Toward Fuse H2 Targets</strong></td>
<td>D. Welty (University of Chicago), T. Snow (University of Colorado), D. Morton (Dominion Astrophysical Observatory)</td>
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D. Welty (University of Chicago), T. Snow (University of Colorado), D. Morton (Dominion Astrophysical Observatory)

*The Hydrogen Abundance in the Hot Db White Dwarfs*
F. Wesemael (University of Montreal), R. Saffer (Villanova University), A. Beauchamp, P. Bergeron (University of Montreal)

*Heavy Element Recombination Lines in Nebulae*
R. Williams (Space Telescope Science Institute), J. Baldwin (National Optical Astronomy Observatories), G. Ferland (University of Kentucky)

*A Fundamental Plane Peculiar Velocity Survey of Rich Clusters Within 200 H-l Mpc*
J. Willick (Stanford University), M. Hudson (University of Victoria), J. Lucey (University of Durham), D. Schade (Dominion Astrophysical Observatory), R. Smith (Universidad Catolica de Chile), N. Suntzeff (National Optical Astronomy Observatories), G. Wegner (Dartmouth College), S. Quinney (G) (University of Durham)

*Understanding the Re-Ionization History of the Universe*
G. Williger, A. Smette, S. Heap (Goddard Space Flight Center)

CF  1n  (3 hrs)

4m  3n  (27.5 hrs)

4m  4n  (43.5 hrs)

0.9m  3n  (21 hrs)

WIYN  Queue (6.7 hrs)