

# EDUCATIONAL OUTREACH

PUBLIC AFFAIRS AND EDUCATIONAL OUTREACH

## AAS Meeting Exhibit and News Activity Draws Strong Interest

*Douglas Isbell*

The 207<sup>th</sup> annual meeting of the American Astronomical Society (AAS), held in Washington, DC, from 8-12 January 2006, was very likely the largest astronomy-related meeting in history, with more than 3,130 registrants. NOAO contributed a lively exhibit booth and a very active media presence at the meeting.

The NOAO exhibit booth was dominated by colorful new panoramic images of the Large and Small Magellanic Clouds from the Magellanic Cloud Emission Line Survey (MCELS), led by Chris Smith and Sean Points of Cerro Tololo Inter-American Observatory (CTIO); see the cover of this *Newsletter* and the story on page 6 in Science Highlights. Frank Winkler (Middlebury College) of the MCELS team contributed the image files of the Small Magellanic Cloud.

Released publicly on the first day of the meeting via the NOAO Web site, the images of the galaxies were cited almost immediately in the online blogs of several press room attendees, such as the Bad Astronomer. The image of the Large Magellanic Cloud ([www.noao.edu/image\\_gallery/html/im0994.html](http://www.noao.edu/image_gallery/html/im0994.html)) has since appeared on the "Astronomy Picture of the Day," the Space.com "Image of the Day," and the back cover of the March/April 2006 "StarDate" magazine. Chris Smith and Chris Miller of the NOAO scientific staff spent a lot of time at the booth presenting live demonstrations of the new portal to the National Virtual Observatory developed by the NOAO Data Products Program (see story on page 11).

By happenstance, Washington DC Mayor Anthony Williams stopped by the NOAO booth for an extensive discussion about Kitt Peak's role in astronomy, following his well-received opening remarks to the AAS.

The first press briefing of the meeting on Monday morning focused on the latest news about black holes from two speakers, including results from a team led by Kambiz Fathi (Rochester Institute of Technology) based on data from the Gemini Multi-Object Spectrograph (GMOS) on the Gemini South 8-meter telescope.

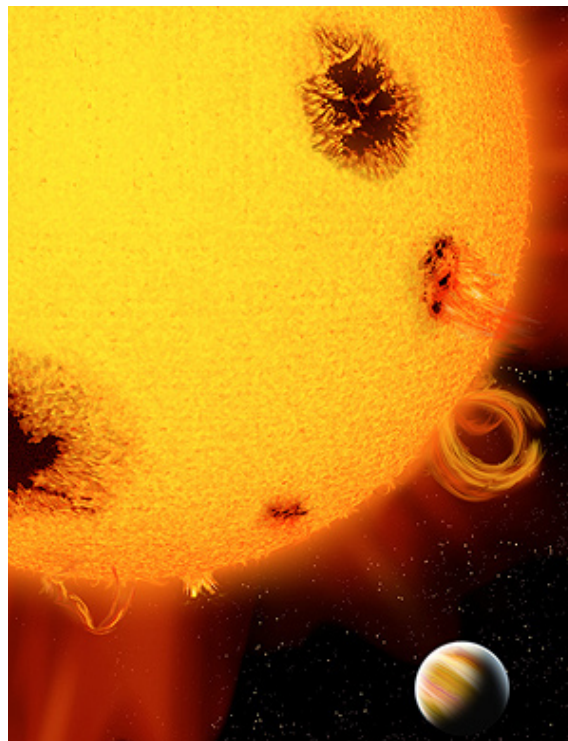
Fathi presented analysis of two-dimensional spectral data from the center of active galaxy NGC1097, obtained with the GMOS integral field unit, which showed it takes approximately 200,000 years for the material feeding the black hole to complete the final part of its one-way trip from the inner region of the galaxy to oblivion.

The observations from Gemini, combined with images from the Advanced Camera for Surveys on the Hubble Space Telescope, enabled the team to zoom 10 times closer to the black hole than any previous measurements, reaching clouds of spiraling material within 10 light-years of the galactic core. "It is the first time anyone has been able to follow gas this close to the supermassive black hole in the center of another galaxy," Fathi said. "The work of our team confirms the main theories that have never been observationally confirmed at this level."

"This is a major leap forward in our understanding" of how to fuel a supermassive black hole, said press briefing commentator Kimberly Weaver (NASA Goddard Space Flight Center). "It is a monumental observation," she added, that provides "a clear way for the black hole to obtain the mass that it needs." This result was covered by Reuters wire service (widely reprinted around the world), *ScienceNOW*, *SpaceDaily.com*, *Space.com*, *PhysOrg.com*, and many others.

The second press briefing of the meeting included two topics with NOAO connections. Armin Rest and Nicholas

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*An artist's rendition shows a planet orbiting a very young, active star pocked with dark star spots and speckled with flares and other surface activity. A team led by University of Florida astronomer Jian Ge announced the discovery of the planet using the Exoplanet Tracker instrument at Kitt Peak during the January 2006 AAS meeting. (Credit: P. Marenfeld and NOAO/AURA/NSF.)*



## *AAS Meeting Exhibit and News continued*

Suntzeff of CTIO expanded on a result reported in the December 22 issue of *Nature*, which described the discovery of light echoes from ancient supernovae that exploded 400-860 years ago in the Large Magellanic Cloud, using a differential imaging technique. (See the Science Highlight on page 3 of this *Newsletter*.)

At the AAS meeting, they announced their ability to obtain a spectrum of one of the light echoes using Gemini South, which can in theory be analyzed to diagnose the precise type of supernova that occurred. “We were jumping up and down we saw this truly amazing spectrum,” Rest said. “We find a clear association with a Type-Ia supernova.”

“We can scale these results and search for echoes of historical supernovae in the Northern Hemisphere,” such as the landmark stellar explosion recorded by Tycho Brahe in 1572, Suntzeff said. “We should be able to find these things inside wide-area surveys.”

“It’s an incredible trick, and getting the spectrum is absolute evidence,” said briefing commentator Robert Kirshner (Harvard University and AAS president). “This result is a fantastic example...of the way that detectors and computers have improved.” This story was covered by *Astronomy.com* and *SkyandTelescope.com*, among other astronomy news sites, and it was the subject of a “SlackerAstronomy” podcast.

Steve Howell (NOAO and WIYN) was co-presenter of another finding at this press briefing, which used Hubble Space Telescope data to identify a binary system that is a likely precursor to a Type-Ia supernova.

Jian Ge (University of Florida) was part of a lively Wednesday AAS press briefing panel on exoplanets. Ge announced the first planet to be discovered by “ET” – the Exoplanet Tracker instrument in use by his team at the 2.1-meter telescope and Coudé feed at Kitt Peak National Observatory. This result was covered by a wide variety of more than 100 news outlets around the world. The exoplanets press briefing also included results on planets in double and triple star systems from the SMARTS telescopes at CTIO, presented by Deepak Raghavan (Georgia State University).

An NOAO press release issued at the meeting about new data on the cool dark equator of the star Vega, by a team led by NOAO postdoc Jason Aufdenberg with data from the CHARA array on Mount Wilson, was covered by *Space.com* and *SkyandTelescope.com*.

Please contact the NOAO office of public affairs ([outreach@noao.edu](mailto:outreach@noao.edu)) if you have results that you would like to publicize at future AAS meetings. See you in Calgary.

## NASA-NOAO Spitzer Teachers Continue to Exhibit Infrared Excess

*Stephen Pompea*

At the January meeting of the American Astronomical Society (AAS) in Washington DC, six newly selected teachers met to plan infrared observations with the Spitzer Space Telescope, joining 12 teachers who are currently doing scientific research with NOAO and NASA scientists. Seven Spitzer-based research projects are underway at this time. Several of the science teams also presented posters and talks at the AAS meeting on science results and related educational activities.

The teachers from last year’s cadre and this year’s new class were selected through a highly competitive process. Each teacher was required to be a graduate of one of NOAO’s NSF-funded research programs for teachers (either Research Based Science Education [RBSE] or Teacher

Leaders in Research Based Science Education [TLRBSE]), in which they received extensive training on astronomical research, including several nights of observing at Kitt Peak National Observatory. Many of the teachers had also taken a 15-week distance learning course on astronomical research that is part of TLRBSE.

Each applicant wrote a multi-page application describing their scientific aptitude for the program, as well as the outreach and professional development activities they would lead at a regional, state, or national level, if chosen. Each selected teacher then received additional training in a workshop on the Spitzer Space Telescope instrument capabilities, and on infrared astronomy in general. Each project team, consisting of teachers and science mentors, then wrote a standard

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## Public Affairs

### *NASA-NOAO Spitzer Teachers continued*

Spitzer observation proposal intended to make use of the Spitzer Science Center (SSC) director's discretionary time.

Project mentors include Greg Rudnick and Steve Howell (NOAO), John Feldmeier (formerly NOAO, now at Youngtown State University), Luisa Rebull, Don Hoard, Mark Lacy, Varoujan Gorjian, and Ranga Ram-Chary (SSC), Rose Finn (Sienna Collage) and Vandana Desai (Caltech). Program coordination was provided by Doris Daou and Michelle Thaller (SSC), and myself, Connie Walker, and Katy Garmany (NOAO).

#### **Original Teacher Participants :**

Jeff Adkins,

*Deer Valley High School, Antioch, CA*

Howard T. Chun,

*Cranston High School East, Cranston, RI*

Lauren K. Chapple,

*Traverse City East Junior High School, Traverse City, MI*

Harlan V. Devore,

*Cape Fear High School, Fayetteville, NC*

Anthony R. Maranto,

*Phillips Exeter Academy, Exeter, NH*

Steve Rapp,

*Linwood Holton Governor's School, Abingdon, VA*

Theresa Roelofsen,

*Bassick High School, Bridgeport, CT*

Babs Sepulveda,

*Lincoln High School, Stockton, CA*

Linda Stefaniak,

*Allentown High School, Allentown, NJ*

Timothy S. Spuck,

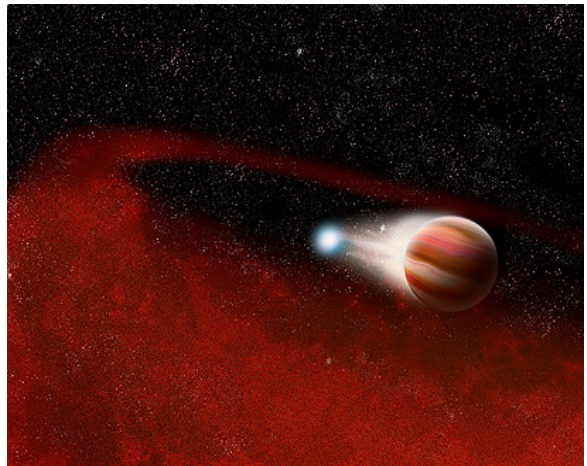
*Oil City Area Sr. High School, Oil City, PA*

Beth Thomas,

*Great Falls Public School, Great Falls, MT*

Cynthia Weehler,

*Luther Burbank High School, San Antonio, TX*



*This artist concept illustrates new Spitzer Space Telescope teacher research observations of an unusual class of interacting binary stars that emit excess amounts of infrared radiation, suggesting that these odd objects are surrounded by large disks of cool dust.*

*(Credit: P. Marenfeld and NOAO/AURA/NSF.)*

#### **Newly Selected Teachers:**

Ardis Herrold,

*Grosse Pointe North High School, Grosse Pointe Woods, MI*

John Blackwell,

*Phillips Exeter Academy, Exeter, NH*

Thomas Loughran,

*Saint Joseph's High School, South Bend, IN*

Dwight Taylor,

*South Anchorage High School, Anchorage, Alaska*

Rosa Hemphill,

*Oregon Episcopal School, Portland, OR*

Velvet Dowdy,

*Graves County High School, Mayfield, KY*

Projects titles include "Star Formation in High Redshift Clusters," "Supermassive Black Hole in Arp102B," "Observations of Iron Stars," "Intergalactic Star Formation in Tidal Dwarf Galaxies of M81," "Young Stars in IC 2118," "AGN Spectral Energy Distributions," and "Brown Dwarfs in Interacting Cataclysmic Binaries." SSC Director Tom Soifer has been extremely supportive and engaged in the program since its inception.

Sponsored by NOAO and SSC, this teacher program represents an attempt by NASA and the astronomical community to engage the general public in the experience of exploration and discovery, while also enticing middle and high school students into pursuing careers in science, technology, engineering and mathematics.



*Two Spitzer teachers calibrate themselves in the thermal infrared during meetings of the Spitzer Research Program for Teachers team at the AAS.*