"All The v's That's Fit To Print"

ΦYAST ΦLYER

The Homer L. Dodge Department of Physics and Astronomy
The University of Oklahoma

Volume 16, Number 1 Winter, 2008 Dick Henry, Editor; Debbie Barnhill, Production
Web site: http://www.nhn.ou.edu

REFLECTIONS ON 2007

The year 2007 was a year of both accomplishment but also of some frustration. Let me begin with the positives.

Our external funding topped out at $4.29M for the year, just a bit higher than last year but still double where we were just 7 short years ago. Other signs of a healthy research environment are the fine incoming class of graduate students, which we welcomed in August and the George Lynn Cross and Presidential Professorships received by Kim Milton and Matthew Johnson. Although our service-course credit hours declined by about 13%, our undergraduate-major and graduate credit hours held constant.

The year 2007 also saw the final phase (III) of our Nielsen Hall Addition and Renovation Project put out for bid, one of which was approved by the OU Regents. Phase III will include a new and desperately needed new roof for the old (1948) part of the building and renovation of all its public spaces such as hallways and main office. The old building will also get all new double-pane windows and improvements in several research and classroom areas. The project is expected to be completed sometime in spring 2009.

We began 2007 full of hope that our search in Astrophysics for the first Homer L. Dodge Chair would be filled. But after a very good pool of candidates, five on-campus interviews, and three sequential and eventually turned-down offers, we threw in the towel in the fall and decided to try next in High Energy Physics. I think we all learned that hiring senior, distinguished faculty is a whole different ball game from our normal, usually very successful hiring process.

Actually, it's been quite a few years since we last hired a faculty member. This dawned on us in mid-year when the last of our faculty became tenured. Our faculty of 29 now includes no assistant professors and we can no longer boast of being a young department! Fortunately, this transition

period will probably not be too long. Several of us older faculty are seriously thinking about retirement, giving opportunity to a new generation of departmental leadership to build for the future by strategic replacement hiring in addition to the hiring for the Dodge Chairs.

So dear alumni, I wish you and us a prosperous 2008! If you have nominations for the Homer L. Dodge Chair in High Energy Physics (theory or experiment), please get in touch with Phil Gutierrez (gutierrez@nhn.ou.edu).

-Ryan Doezema, Dept. Chair

NEW GRADUATE STUDENTS ARRIVE

Seventeen new graduate students arrived in the fall to begin their studies. As in past years, members of this group include persons from many distant places as well as some from nearby locations. The following is a list of the new students along with their undergraduate institutions. We extend a hearty welcome to each of them and wish them great success during their stay with us.

Iroko Abalao	Wofford College
Thomas Akin	University of Arkansas, Fayetteville
Archana Anandakrishnan	University of Madras, India
Michele Benesh	University of Minnesota, Minneapolis
Donald Boot	St. Vincent College
Matthew Burch	University of Arkansas, Fayetteville
James Coker	University of California, Berkeley
James Dizikes	University of Oklahoma
Robert Hinkey	Loyola College, Baltimore
Sean Krzyzewski	Marquette University
Scott Sennello	University of California, Davis
Laura Smith	University of California, Davis
Sangeetha Vijeyaragunathan	University of Peradeniya, Sri Lanka
Tao Yang	University of Sci. & Tech., Beijing, China
Erin Cooper	University of Oklahoma
Leann Dang	University of Washington, Seattle

NEWS FROM THE SUPERNOVA GROUP

D. Branch, with E. Baron, former postdoc D. Jeffery, former grad students K. Hatano and D. Casebeer, former undergraduates J. Parrent, M. Troxel, N. Hall, W. Ketchum, M. Melakayil and J. Harrison, undergraduate M. Keithley, and visiting summer students C. Dang, M. Musco and C. Bruner, have published in 2005, 2006, 2007, and 2008 the first four articles on a comprehensive comparative study of the optical spectra of Type Ia supernovae (SNe Ia), which are believed to be thermonuclear explosions of white dwarf stars that accrete matter from binary companions and which are used as "standard candles" to determine the expansion history of the universe. With the help of a parameterized supernova synthetic-spectrum code called SYNOW, our team works in an empirical spirit to determine which ions are responsible for the highly Doppler-broadened, blended spectral features of SNe Ia and in which intervals of ejection velocity the spectral lines form. Goals include providing an internally consistent quantification of the spectroscopic diversity of SNe Ia; to determine the extent to which SNe Ia have a continuous distribution of properties rather than consist of discrete subtypes; and to shed light on how the various manifestations of observational diversity are related to their physical causes, thereby providing guidance to those elsewhere who compute nuclear-hydrodynamical explosion models. As reported in the articles (in the Publications of the Astronomical Society of the Pacific), much has been learned but much more remains to be understood. Astronomers at observatories around the world generously continue to provide fresh data to keep us hard at work.

In other SN news, Eddie Baron gave an INPA Seminar, LBL, Berkeley, CA, May 18, 2007, entitled SNe Ia Models and Observations: A Spectroscopist's Point of View, and an Invited talk at Energetic Events in the Universe: From Physics to Cosmology, Marseille, France, June 26, 2007, as well as Numerical Simulations of SNe Ia Explosions --- The State of Art From The Viewpoint of a Spectroscopist. Eddie also visited the university Claude-Bernard in Lyon, France, in June as well as his long-term collaborator Peter Hauschildt in Hamburg, Germany in July and October. Peter's student Dennis Jack visited OU for three weeks in Jan, 2008.

CHRIS STOCKDALE'S NORMAN SOJOURN

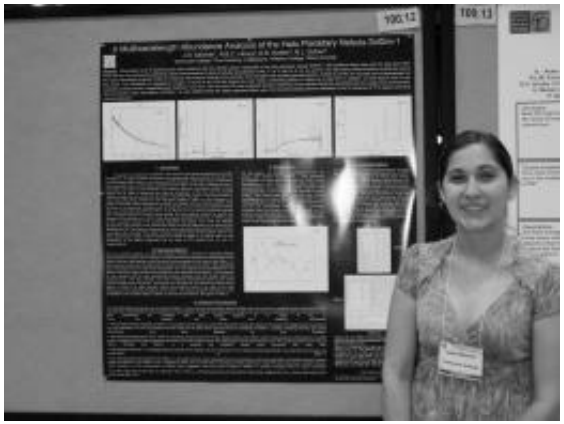
Chris Stockdale (OU Ph.D. 2001) is currently spending the spring semester at the Department, thanks to a one semester pre-tenure sabbatical program through Marquette University. Chris is in his fifth year as an assistant professor at Marquette and is collaborating with John Cowan in a series of VLA programs to study supernovae and the point-source populations of nearby spiral galaxies. Chris and John recently submitted a joint NSF astronomy grant proposal and will be submitting a series of VLA observing proposals for the upcoming VLA array configurations. They hope to find an interested graduate student at OU to become involved in the project and compliment the undergraduate effort at Marquette. Larry Maddox (OU Ph.D. 2006) will also be visiting in March to assist in the work. Larry is currently in a post-doc at the University of Illinois with YouHua Chu.

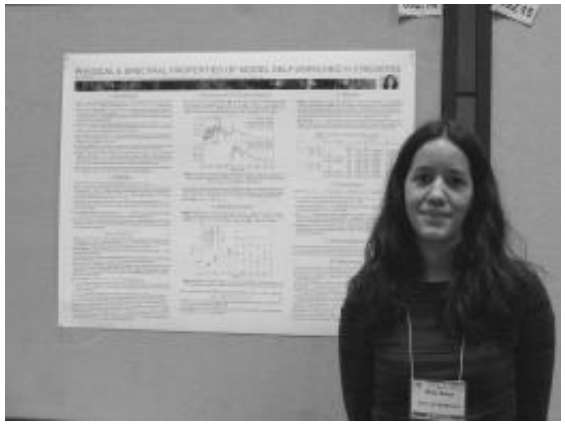
OU ASTRONOMERS DECEND ON AUSTIN FOR WINTER AAS MEETING

Several current and former students of the Department along with faculty members from OU attended the winter meeting of the American Astronomical Society, held in Austin, in January. These individuals included Chris Stockdale, Larry Maddox, Rollin Thomas, Aida Nava, Soma De, Debra Burris, Julie Skinner, Leeann Dang, Randi Worhatch, John Cowan, and Dick Henry. With each person presenting a poster, needless to say OU Astronomy was very well represented at the meeting, which attracted several thousand astronomers from across the US. For those who have attended these kinds of gatherings for nearly three decades it has been interesting to witness the decline in the average age of a typical attendee, as increasingly more undergraduates become involved in research. And of course over the years, the OU group has contributed its own share of these budding scientists.

Besides the serious activities of attending invited talks and grazing in posterland, Chris Stockdale organized an OU dinner at a local restaurant. All 11 OU astronomers plus Peter Shull (OSU) and a student of Debra Burris spent an evening at the Melting Pot, a comfortable fondue establishment near the meeting location close to 6th Street. With their own private room (the management anticipated rowdiness, it is supposed) and with moods leavened by winemeister John Cowan's expert picks of the evening, the group spent three hours spearing food, lifting glasses, laughing, and talking about things other than astronomy. And of course confirming the management's suspicions. May this OU tradition continue for many years!

The top two photographs below show Julie Skinner (left; BS Astro. 2007, now a grad student at Dartmouth College) and Aida Nava (right; OU doctoral student) as they present their posters at the Austin meeting. The bottom two photos show the dinner party at the Melting Pot.






ALUMNI NEWS

The following reminiscence was contributed by Thad Welch (BS, MS Physics 1962) in a letter last July.

"I was a lieutenant in the Air Force while majoring in physics from June, 1959, to June, 1961. Dr. Dick Fowler was my advisor, and I received my MS degree in December, 1962. Dr. Howard was about halfway through his tenure at the University. Dr. Sybrand Broersma, a visiting physics professor from The Hague, was our next door neighbor. His mother was a wonderful person and walked all over the city while about 90 years old. She visited her son from time to time. Dr. Stanley Babb and I bowled together several times and Dr. Cross was the President. I was eligible for and joined the Pi Mu Epsilon national fraternity in 1961 and was a member of Sigma Pi Sigma from my undergraduate days. Very good memories.

"While in the Air Force, I taught physics at the USAF Academy for four years and saw Dr. Fowler at a physics convention in the late 1960s in Chicago. I retired after 24 years in 1978 and returned to Savannah, my home. I taught math at the college level and then math and physics in high school for several years before giving up that second teaching career in 1996. We moved 200 feet after building a new home in 2005 on the water. The only thing between us and the ocean is about five miles of creeks, rivers, and marsh. Good view."

* * *

The severe ice storm of December 10 left its mark on the Norman campus, including the Nielsen Hall grounds. The biggest losses for us were the two large oak trees on the north side of the building. These trees apparently lost enough branches that the OU grounds crew decided to remove them, as one day in early February they simply disappeared. The area is noticeably brighter now, and it's very likely that something other than monkey grass will now grow there. But the summer shade near the benches will be missed, and it's likely the squirrels are unhappy and will decide to hunt food in a different spot. You will notice the difference on your next campus visit.

THE DODGE CHAIR IN HIGH ENERGY PHYSICS

The H.L. Dodge Department of Physics and Astronomy has initiated a search to fill one of three chairs endowed by the Avenir Foundation. The position will be in High Energy Physics (HEP), open to both experimentalists and theorists. When filled, this position will complement the existing HEP faculty consisting of four experimentalists and two theorists. With the startup of the Large Hadron Collider (LHC) this year, much of the work, both theoretical and experimental, of the HEP group has focused on the completion of the ATLAS detector and the physics studies for the preparation of the physics analysis. The new faculty member will be expected to contribute toward this effort. It is expected we will commence interviewing the first round of candidates this spring during the latter part of March and April.

-Phil Gutierrez, Search Committee Chair

460 copies of this publication, printed by the Physics and Astronomy Department, have been prepared and distributed at a cost of $155.52 to the taxpayers of the state of Oklahoma.