

# The Kirkwood Society

A Newsletter for Alumni and Friends of the  
Astronomy Department at Indiana University

Editor: Richard H. Durisen

Compositor: Christina Lirot

Summer/Fall 2002

## Greetings from the Chairman!

Astronomy has a long and splendid tradition at Indiana University going back to Prof. Daniel Kirkwood's distinguished research on asteroids, comets, and meteors in the mid-Nineteenth Century. In light of this, it is with more than a little trepidation that I have begun a three-year term as Department Chairman this July. The previous Chairman, R. Kent Honeycutt, has certainly left me with a rather large swivel chair to fill. Kent's achievements during five years as Chair have been huge, including the renovation and creation of valuable local facilities, enhancement of our financial commitment to participation in the WIYN Consortium, recruitment and nurture of excellent young faculty members, and the addition to our department of Katy Pilachowski, the current President of the American Astronomical Society, as our first Kirkwood Professor. Not the least of Kent's contributions have been his efforts to improve communication with our friends and alumni. It is, after all, your activities and accomplishments which are the department's living tradition. Please let me know how I can serve you best. Contact Dick Durisen at the department or by email at [durisen@astro.indiana.edu](mailto:durisen@astro.indiana.edu).

This Newsletter has come out somewhat late this year partly because of the chairmanship transition but mainly because the department is planning a wonderful October weekend of events to which you are all invited. I hope you will take advantage of this opportunity to share exciting developments in the Department of Astronomy.

---

## INSIDE THIS ISSUE

- 1 Greetings from the Chairman, October Astrofest
- 2 Kirkwood Renovation, Frank 90<sup>th</sup> B-Day
- 3 REU Program, REU Site Directors Meeting, Graduate Seminar on Astronomical Citizenship
- 4 Graduate Seminar, Astro Newsclips,
- 5 Pilachowski AAS President, Research Highlights
- 6 Women in Science, Faculty News, Alumni News
- 7 Alumni News, Gifts, Tell us about yourself, website

## October Astrofest

Due to the confluence of two very special occasions (see p. 2), the rededication of a renovated Kirkwood Observatory and the 90th Birthday of Professor Emeritus Frank K. Edmondson, the Department of Astronomy will be hosting a weekend of activities called Astrofest for our friends, alumni, and community. We have a lot to celebrate at the beginning of the new Millennium -- a long, rich history, a renewed and vigorous present, and the promise of an exciting future. We hope you will be able to join us for some or all of these festivities. The following schedule of events is in summary form. We will be sending more detailed information soon after this Newsletter, including a reservation form for the Edmondson dinner. Please mark these times and dates on your calendar. Consult the Astrofest website at [www.astro.indiana.edu/astrofest/astrofest.html](http://www.astro.indiana.edu/astrofest/astrofest.html).

### Friday, October 25

- 1:30-4:00pm --Kirkwood Observatory Open House
- 4:00-4:30pm -- Kirkwood Observatory Rededication Ceremony
- 7:30-9:30pm -- Star Party at Kirkwood Observatory (weather permitting)

### Saturday, October 26

- 1:30-5:00pm--WIYNfest in Swain Hall West Rooms 113 and 119

This will be a celebration of our partnership in the WIYN Telescope Consortium. There will be a series of short talks about use of WIYN telescopes for individual research projects, for graduate and undergraduate education, and for Consortium-wide research collaborations. There will be poster presentations where you can meet IU students and discuss the research they are doing. There will also be talks about the future of WIYN and about exciting new instrumentation technology developments.

- 6:30-9:30pm -- 90th Birthday Dinner for Prof. Frank K. Edmondson at Bloomington Convention Center.

There will be a reception and dinner followed by tributes to Frank for all his contributions to Indiana and U.S. Astronomy. Please note that the date for dinner has changed since our April mailing.

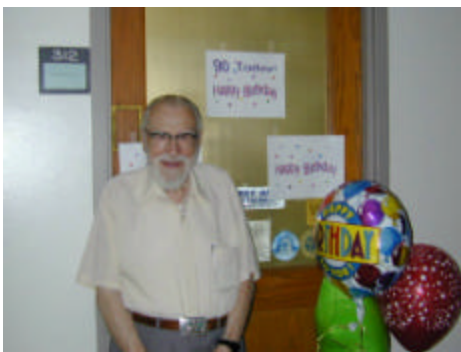
## Kirkwood Renovation



Kirkwood Observatory was first dedicated on May 15, 1901. It was named in honor of Daniel Kirkwood, one of the most renowned American astronomers of the Nineteenth Century and an IU faculty member from 1856 to 1886. Due to serious structural issues, especially with the wooden dome, the observatory was thoroughly renovated during the 2001-2 academic year. The original 12-inch telescope built by Warner and Swasy using a Brashear objective lens received a complete restoration. Work was completed on the project in Spring 2002. Prof. Kent Honeycutt provided overall supervision on behalf of the department. Special thanks are due to department staff members Bill Kopp and Brice Adams and to IU's Physical Plant and Architect's Office for a superb job.

In its naming, Kirkwood Observatory was originally a tribute to a distinguished astronomical past. On October 25, 2002, over a hundred years later, the Department of Astronomy will rededicate this refurbished observatory to honor yet another century of accomplishments by IU astronomers. Although the 12-inch telescope is no longer an instrument for research, it will continue to live a long life as a valuable educational tool for college students and the Indiana community. The department has been able to reinstitute its regular Wednesday night public open houses and provide special services for school and community groups upon request.

## Frank K. Edmondson's 90th Birthday



Professor Emeritus Frank K. Edmondson celebrated his 90<sup>th</sup> birthday on August 1, 2002. If he could sum up his life in one sentence, Frank says it would be that he “ was at the right place at the right time more than my fair

share.” Well, what Frank attributes to coincidence was more the result of who he is and the choices he made. Anyhow, it cannot hurt to live such a long and active life to multiply one's chances for good luck.

Frank was born in Milwaukee, but moved to Seymour, Indiana when he was five. Except for the odd year or two. Frank has been a resident Hoosier ever since. He first became associated with Indiana University during the heart of the Depression in 1929, as an undergraduate. Living on 25-cent hamburgers and hard work, he graduated in 1933 and spent 1933-34 at Lowell Observatory on a Lawrence Fellowship to earn a Master's degree from IU. In one of the most important “coincidences” of his career, Frank was asked to stay on at Lowell from 1934 to 1935 to replace an incompetent observing assistant who was taking plates for C. Tombaugh's search for Pluto-like objects. During the summer of this year, Frank met his wife-to-be Margaret Russell, daughter of the distinguished American astronomer Henry Norris Russell. He went on a blind double date with her and her sister, and Margaret engineered a switch of the couplings during the evening to be with Frank. The rest is history.

Frank earned his Ph.D. from Harvard with Bart Bok in 1937 and was immediately hired as the second astronomy faculty member at IU. When Wilbur A. Cogshall retired in 1944, Frank became “chair of himself”. He began a photographic program to recover asteroids lost during the War, and his negotiation of the post-War gift of Goethe Link Observatory to IU led to the creation of IU's Ph.D. program in astronomy. Under Frank's chairmanship from 1944 to 1978, the department grew to about its present size. He entered full retirement in 1983.

In addition to his scholarly interests in stellar kinematics, galactic structure, astrometry of asteroids, and history of astronomy, Frank has compiled a remarkable resume of service to the astronomical community. He was the third Program Director for Astronomy of the National Science Foundation in 1956-1957, Treasurer of the American Astronomical Society from 1954 to 1975, and Statistical Advisor to Dr. Alfred Kinsey during his studies of human sexuality. Frank played a major role in the development and site selection of the National Optical Astronomy Observatories and ensured that IU was a founding member of the Association of Universities for Research in Astronomy (AURA). At the young age of 85, Frank had his first book published *AURA and its US National Observatories*. He still holds the title of Consultant Historian for AURA. Frank's current project is a history of the IU Department of Astronomy, and he says he has already completed a detailed chronology.

Thanks for all you have done, Frank. We look forward to feting you in October and wish you another fruitful and lively decade ahead. Luck comes to those who seize the opportunities which are always around us. Nunc Carpe Centannum!

## Summer REU Program in Astronomy

This summer, six undergraduate students from around the country participated in the astronomy department's first Research Experience for Undergraduates (REU) site program, funded by the National Science Foundation. Professors Kent Honeycutt, Con Deliyannis, and Caty Pilachowski received funding from the NSF to operate an REU site program on the Bloomington campus for three summers. Students spend 10 weeks on campus over the summer, carrying out research projects with faculty members. Indiana University's program is one of more than a dozen programs nation-wide, and one of the first such programs in the Midwest.

This summer's students were an able group, selected from a highly competitive field of more than three dozen applications from students around the country. The program's goal is to give undergraduate students an opportunity to participate in astronomical research and to gain experience as young professionals.

Students arrived on campus in mid-May, after the end of the spring semester. Their first weeks were spent getting settled and picking up some necessary skills, including the use of Linux computer systems and, for most students, learning IRAF for data reduction and analysis. All of the students visited Kitt Peak in June or July to participate in observing runs on the WIYN 3.5-m and 0.9-m telescopes. These visits to Tucson also included additional activities such as a visit to the University of Arizona to learn about graduate school or to visit the Steward Observatory Mirror Lab.

The IU program offered the students a special emphasis on stellar astronomy, with projects overseen by IU Professors.

Mark Pitts, a senior from Ohio State University, and Luis Mercado, a junior from Indiana University Bloomington, worked with Kent to study long-term light curves of cataclysmic variables from the department's automated 16-inch telescope at the Morgan-Monroe Station of the Goethe Link Observatories. After deriving the light curves, the students worked to understand the nature of the accretion effects seen in these dwarf novae and nova-like light curves.

Heather Jacobson, a senior from the University of Texas at Austin, and Jeffrey Cummings, a junior from the University of Rochester, worked with Con to derive distances, ages, reddenings, and metallicities for open star clusters in the direction of the Galactic anti-center, using data obtained on the WIYN 0.9-m telescope on Kitt Peak. Students reduced UBVR images of three clusters, M36, M37, and M38, to obtain precise magnitudes and colors, and then compared the resulting color-color and color-magnitude diagrams to theoretical isochrones to derive the stellar parameters.

TalaWanda Monroe, a senior from Western Kentucky University, and Stacy Sidle, a junior from Rhodes College in Tennessee, worked with Caty to study the chemical compositions of stars with planets. The students used

very high resolution, high S/N ratio spectra obtained with the coude feed telescope at Kitt Peak to measure the strengths of spectral lines of various atomic species. The measurements were combined with atomic line data and model atmospheres to obtain chemical abundances using the methods of detailed analysis. The students were also able to measure lithium abundances in the stars using spectral synthesis.

At the end of the summer, the students presented short talks on their work and will also be presenting their research at a meeting of the American Astronomical Society in January 2003 in Seattle.



Back Row: Constantine Deliyannis, Kent Honeycutt, Mark Pitts, Jeff Cummings. Middle Row: Stacy Stidle, Tala Monroe, Luis Mercado. Front Row: Caty Pilachowski, Heather Jacobson.

## IUB Astronomy Hosts REU Site Directors Meeting

During July 10-11, Site Directors from REU programs in astronomy around the country met in Bloomington for two days of discussion. The meeting was hosted by the IUB Astronomy Department and sponsored by the National Science Foundation through a grant. In addition to the Site Directors from 15 programs, the meeting was attended by NSF/REU Program Officer Dr. Kathy DeGioia-Eastwood and by Dr. Eileen Friel of the NSF Astronomy Division. The meeting was held at the University Club in the Indiana Memorial Union, and participants roomed in the IMU hotel. The Bloomington campus provided a tranquil setting that was much enjoyed by all participants.

## A Graduate Seminar on Astronomical Citizenship at Indiana University

During the Spring 2002 semester, graduate students and faculty in the Astronomy Department participated in a graduate seminar on astronomical citizenship organized by Prof. Caty Pilachowski. Graduate studies usually focus on the content of astronomy and on research, but young professionals also need to learn much about the culture of the astronomical community and about the activities of professional astronomers that extend beyond research. At the same time, the alumni of Indiana University's astronomy program have accumulated a

a strong record of service to the astronomical community. We wanted to foster in our current students a sense of responsibility for service to the community and an appreciation of the value of that service.

The schedule of seminar topics included a wide range of subject matter from public outreach to scholarly publishing, panel reviews, the federal budget process, and careers in science. The series included seminar presentations by students, faculty, and visiting astronomers. Seminars by visiting astronomers included presentations by Dr. Eileen Friel of the National Science Foundation, on the topic of NSF support of astronomy; Dr. Brian Pickett of Purdue University Calumet, on public outreach and his experience with the ASP's Project Astro; Dr. Steven Shore of Indiana University South Bend, on scholarly publishing and the refereeing process for the astronomical literature; Dr. Kevin Marvel of the American Astronomical Society, on federal science funding and the federal budget cycle; and Dr. Guenter Riegler of the NASA, on the role of astronomers in government.

Prof. Dick Durisen presented a seminar on the teaching of Astronomy 101, including a discussion of the goals for astronomy education developed through the Astronomy Education Board of the AAS and examples of classroom activities, while Caty presented a seminar on the role of the American Astronomical Society in the astronomical community.

Students presented seminars on a variety of topics, as well. Graduate students Kai Cai and Stella Kafka, from China and Greece, respectively, described the astronomical communities of their respective countries. Other students presented seminars on astronomy and the media, astronomers in industry, and women in astronomy. Two seminar periods were devoted to overviews of large telescope projects underway around the world and to major astronomical survey projects, both presented by students.

The course culminated in a "review panel" run by the students to evaluate research proposals written by students enrolled in Dick's concurrent graduate course on stellar interiors. A senior graduate student served as chair of the panel, which awarded grade points to the most successful proposals.

The seminar was successful in stimulating good discussion among students and faculty, both during class and outside class, and appears to have raised the level of understanding among students about the broader roles they will have as professionals within the astronomical community.

Whether we have achieved our second course goal of instilling a willingness to participate fully in the professional community will be known only as our students move forward in their careers. We are sufficiently optimistic,

however, that we expect to present a similar seminar series regularly to expose future cohorts of students to the concepts of astronomical citizenship.

Finally, we are grateful to our colleagues who visited Bloomington to participate in the graduate seminar on astronomical citizenship. Our invited speakers enlivened and enriched our understanding of public service in astronomy. Copies of slides and viewgraphs from the Graduate Citizenship Seminar can be found on the web at [www.astro.indiana.edu/citizenship.html](http://www.astro.indiana.edu/citizenship.html)

## **Astro Newsclips**

Astronomy major Emily Freeland received a department honors medallion and the 2002 Hollis and Grete Johnson Award for her senior honors research. Freeland, working with Prof. Con Deliyannis, derived a new color-magnitude diagram for the old open cluster NGC 2420. Her work was also presented at the AAS meeting in Albuquerque in June. Freeland is attending graduate school in astronomy this fall at the University of Wisconsin.

Astronomy major Kenneth Moody received the 2002 Astronomy Alumni Award for Overall Academic Excellence and was elected to Phi Beta Kappa for his academic achievement during his undergraduate career at Indiana University. Moody is attending graduate school this fall at Penn State University.

Graduate student Stella Kafka received a travel award from the Women in Science Program to attend a conference on stellar variability this summer in Brussels. She presented a paper titled "Variable Stars in Open Clusters: NGC6791 and NGC188."

Graduate students Annie Mejia and Brian Rebel have been awarded Swain Fellowships for 2002-3 in recognition of their outstanding research.

Annie Mejia won top honors in the IU Women in Science Program's annual research presentation fair for her poster on the evolution of preplanetary disks around young stars. She also received a 2002 McCormick Science Grant for \$2,500 to support her collaborative research with Prof. Dick Durisen.

Graduate student Kai Cai received an international travel award from the American Astronomical Society and a travel award from COAS to attend the Pacific Rim Conference in China this summer and present a poster titled "Photometric Detection of Binaries in Open Star Clusters."

## Research Highlight: Dwarf Galaxies



UGC 685



UGC 9128

Dwarf galaxies are the smallest, least luminous galaxies in the universe. However, despite their small size and low luminosity, some gas-rich dwarf galaxies have high star formation rates at the present time. Since their current high star formation rates cannot be sustained for more than a few hundred million years, these "starbursting" dwarf galaxies present several interesting questions: what initiates their unusual star formation activity, and what will be their ultimate fate?

One possible explanation is that a high star formation rate represents the "on" state for a cyclic and episodic mode of star formation in these intrinsically small systems. In this model, dwarf galaxies undergo periods of quiescence followed by periods with extremely high star formation activity. Based on the relative rarity of starbursting dwarf galaxies, the "on" phase is expected to be a short, but intense, burst of star formation activity while the "off" phase is usually modeled as a period with an extremely low (or zero) star formation rate; galaxies in the quiescent phase would be classified as dwarf irregular galaxies. The length of the duty cycle (period between bursts) and periodicity may depend on the size of the galaxy and its environment. Thus, in this model, starbursting and quiescent dwarf galaxies represent different stages in a common evolutionary history.

Alternatively, starbursting and quiescent dwarf galaxies could represent different types of systems, in which the mode of star formation (burst vs. quiescence) is determined either by intrinsic factors such as gas distribution or angular momentum or by extrinsic factors such as environment or tidal triggers. While environmental triggers almost certainly play a role in the onset of some starbursts, the recent study by Prof. Liese van Zee (IU) and her colleagues John Salzer (Wesleyan) and Evan Skillman (U. Minnesota) of the gas distribution and angular momentum of starbursting and quiescent galaxies suggests that there may also be an intrinsic difference in the angular momentum of starbursting and quiescent dwarf galaxies, which would provide a natural explanation for the different modes of star formation activity. In particular, starbursting dwarf

galaxies appear to have lower specific angular momenta and steeper rotation curves than non-starbursting dwarf galaxies. This suggests that the threshold density for the onset of star formation may be *higher* in the starbursting dwarf galaxies; concurrently, their lower specific angular momenta indicates that it is easier for the gas to fall into the center of the galaxy. Thus, the central regions of these galaxies reach higher gas densities than the typical dwarf irregular galaxy, and a starburst mode is more likely once the threshold density is reached.

Both of these models suggest that the starbursts are transitory and relatively brief. The main difference between these models is whether a starburst phase is the typical mode of star formation in low mass galaxies or if it represents a rare phenomenon. The relative occurrence and strength of starbursts in dwarf galaxies are key parameters for the interpretation of the class of faint blue galaxies found in intermediate redshift surveys - often thought to be dwarf galaxies that are temporarily overluminous due to an intense starburst - and to the enrichment of the intergalactic medium at high redshift.

Liese, David Schade (HIA), and IU graduate student Janet Casperson have now begun a large optical imaging and spectroscopic survey to determine the fraction of dwarf galaxies that undergo a starburst phase. The SMUDGES (Systematic Multiwavelength Unbiased catalog of Dwarf Galaxies and Evolution of Structure) survey is designed to take advantage of the excellent wide field capabilities of both of the WIYN telescopes. The combination of wide field imaging on the 0.9-m telescope and multifiber spectroscopy on the 3.5-m telescope are ideal for this project. Our goal is to create a deep, complete galaxy catalog that is unbiased by the current star formation activity in each galaxy. The SMUDGES survey will be the first that has both the depth and volume to identify a statistically significant number of dwarf galaxies and that will include both starbursting and quiescent galaxies. When complete, the SMUDGES survey will yield an extensive galaxy catalog with magnitudes, colors, redshifts, and morphological data for tens of thousands of galaxies. Direct number counts of the different dwarf galaxy populations will determine *for the first time* the fraction of dwarf galaxies that go through a starburst phase, and the duty cycle of that phase. If the starburst phase is uncommon, i.e., most dwarf galaxies do not undergo a strong burst of star formation, then it is unlikely that dwarf galaxies are responsible for the early enrichment of the intergalactic medium, and an alternative explanation must be found for the rapidly evolving population of faint blue galaxies identified at intermediate redshifts.

## Pilachowski Begins Term as AAS President

Prof. Catherine Pilachowski began her term as President of the American Astronomical Society in June at the Albuquerque meeting of the Society. She will serve for two years before stepping down. As President, Caty's goal is to increase opportunities for astronomers to become involved in the affairs of the Society. "The strength of the Society is in its members," she says. "Astronomy benefits when more of us can participate."

## Woman in Science Program Seeks Alumni Mentors

The Women in Science Program (WISP) is setting up an Electronic Mentoring Program between alumni of all science departments and current IU women science majors. This program would begin in the Fall 2002 semester and would be facilitated by WISP. Mentoring is an important way to support the academic endeavors of women students who are interested in pursuing careers in science, whether in academia or the professional realm. Any interested alumni or current student may contact the Women in Science Program by e-mailing [wisp@indiana.edu](mailto:wisp@indiana.edu) or by calling (812) 855-3849 and asking for Kimberly Mealy. WISP will be accepting applications on-line (by late August) at the WISP homepage located at [www.indiana.edu/~owa/WISP](http://www.indiana.edu/~owa/WISP) (look for the Alumni e-Mentoring link).

## Faculty News:

Kirkwood Professor Catherine Pilachowski recently had an asteroid named for her. The citation for Pilachowski=1999ES5 reads "Discovered 1999 March 13 by R.A. Tucker at Goodricke-Pigott Observatory. Caty Pilachowski (b. 1949) is a specialist in the study of stellar evolution and compositions, nucleosynthesis and astroseismology. A long-time member of the scientific staff of the National Optical Astronomy Observatories, she was recently elected to serve as President of the American Astronomical Society."

Professor Emeretis Hollis Johnson is in China for two years with wife Grete, working at the offices of the China Charity Federation, a nation-wide service and humanitarian organization.

## Alumni News:

Jack O. Burns (Ph.D. '79) is Vice Provost for Research at the University of Missouri in Columbia. He relocated from New Mexico State University where he was Associate Dean and Director of the Arts and Sciences Research Center. He is now at the University of Colorado.

J. Donald Fernie (Ph.D. '58) recently had an asteroid

named for him. The citation for Fernie=1992 UP10 reads "Discovered 1992 Oct 22 by E. Bowell at Palomar. J. Donald Fernie (b. 1933), Professor Emeritus of Astronomy at the University of Toronto and former Director of the David Dunlap Observatory, is known for his work on variable stars, galactic structure, photoelectric photometry, and the history of astronomy of the Nineteenth and Twentieth Centuries."

David Fischel (Ph.D. '63) has worked in remote sensing since 1979, first at Goddard Space Flight Center on Landsats 4 and 5, and later as Chief Scientist at the Earth Observation Satellite Company (EOSAT).

Alec Habig (Ph.D. '96) is Assistant Professor at the Univ. of Minnesota Duluth, after a postdoc at Boston University.

Martha Safford Hanner (M.A. '65) was recently elected President of Commission 21 of the International Astronomical Union, Light of the Night Sky. She is also a member of Commission 15 on Physical Nature of Comets, Minor Planets, and Meteorites and Commission 22 on Meteors and Interplanetary Dust. Martha works at the Jet Propulsion Laboratory in Pasadena.

Randy McKee (B.S. '79) is now a Professor of Physics and Astronomy at Tallahassee Community College in Tallahassee FL.

Kenneth D. Moody (B.S. '02) received a 2001-02 scholarship from the scholarship program of the Distinguished Alumni Service Award Club. The award was presented by Frank K. Edmondson (A.B. '33), who received an Indiana University Distinguished Alumni Award in 1997.

John Piccirillo (Ph.D. '77) works for Radiance Technologies, Inc. in Huntsville AL. He also teaches in the Electrical and Computer Engineering Dept at the University of Alabama, Huntsville, where he specializes in autonomous robots.

Larry Pittman (B.S. '73) works for Cummins Engine in Columbus IN. He is enjoying building his large backyard observatory to provide a permanent mounting for his telescope.

Terry Rettig (Ph.D. '76), Professor of Physics at University of Notre Dame, published a paper in *Nature* on July 4, 2002, which became the subject of a widely circulated news story. Terry and Sean Brittain found possible spectroscopic evidence for the presence of a planet orbiting a young star.

John Lynn Smith (M.A. '49) is retired in Woodstock NY. He recalls waiting during his first two years at IU for the current student "factotum" at Kirkwood Observatory, Herbert Gutowsky, to graduate. Then he was able to assume the envied jobs of winding the clocks, hosting open houses, and assisting Dr. Edmondson in photographing BN Mon.

Michael Smolek (B.S. '77) is on the Optometry faculty at Louisiana State University and on the editorial board of Cornea. Much of his current research is adapted from astronomy, using Zernike wavefront analysis to study aberrations in the eye.

Glenn Spiczak (Ph.D. '95) is a Research Scientist at Bartol Research Institute in Newark, DE. He has recently done research on the SPASE experiment at the Amundsen-Scott South Pole Station.

H. John Wood (Ph.D. '65) is Lead Optics Engineer for the Hubble Space Telescope. He also heads a new instrument development lab at Goddard known as ISAL, the Instrument Synthesis and Analysis Laboratory. ISAL provides an integrated approach to instrument design by real-time capture and archiving of design data.

### **Gifts:**

If you would like to discuss a gift or bequest to Indiana University, please contact the Development Office in the College of Arts and Sciences, Tom Herbert, Director, (812) 855-6276.

### **Tell us about yourself:**

Pass along the latest about yourself for our newsletter. Contact the Astronomy Department by regular mail or send me an email at [durisen@astro.indiana.edu](mailto:durisen@astro.indiana.edu). You can also send your news notes to. The Indiana University Alumni Association, P.O. Box 4822 Bloomington, IN 47402-4822.

### **Website:**

Be sure to visit our Web site to keep updated on news and activities within the Department. [www.astro.indiana.edu](http://www.astro.indiana.edu).

# Astrofest

*A Celebration of IU Astronomy  
Past, Present, and Future!*



**October 25 - 26, 2002**

Indiana University  
Astronomy Department  
Swain Hall West 319  
727 East 3<sup>rd</sup> Street  
Bloomington, IN 47405-7105

1023800