

KU DEPARTMENT OF PHYSICS & ASTRONOMY

College of Liberal Arts
& Sciences

DECEMBER 2011

A NEWSLETTER FOR FRIENDS & ALUMNI OF PHYSICS & ASTRONOMY



*Understanding
Nature
Starts Here*



ALUMNI
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REUNION – 2011: A Report

The Fall Reunion in Lawrence was a great success. The overcast skies cleared by mid-morning and the campus was beautifully uncrowded thanks to an away game for the football team. The festivities started with a packed house for lunch in 3005 Malott with food and refreshments galore as students, faculty, and alumni got reacquainted. The lunch was followed by tours of only a subset of the many labs and research areas now in operation within Malott Hall.



Lisa and Rick Desko, and Dick Sapp (backs to the camera) discuss the past and present within the Dept. of Physics and Astronomy with Jerry Manweiler, Bob Friauf, and Tom Dixon.



Alumnus B.J. Custard ponders the research wonders of modern condensed matter physics as his tour group and tour guide, grad student Nataly Ozak Munoz, look on.



The tours were punctuated by dessert delivered by a private supplier of extraordinary homemade cookies served warm to the attendees. With the completion of the lunch tours, the entire entourage was transplanted to the Spencer Art Museum for a public lecture by Professor and retired astronaut Steve Hawley. The talk was followed by, of course, more refreshments, including two cakes and some hot cider, and a book-signing of the new volume – *Wings in Orbit*.



best in Lawrence, Macellis.

Steve Hawley engages in a little hand-waving during his Spencer lecture.

Following the Spencer event, the Reunion crowd reassembled in the Adams Alumni Center for, you guessed it, more refreshments, including some of an alcoholic nature. In a somewhat calmer environment than the day-long rush of events, the faculty, staff, students and alumni enjoyed a delicious dinner catered by one of the



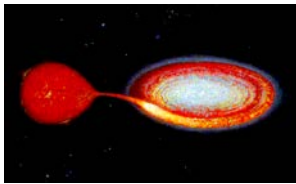
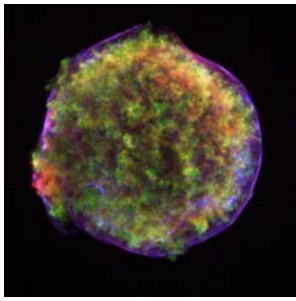
Professor Chris Fischer and Melinda Fischer (left) enjoy a spirited conversation with KU alumni, Michael Rasmussen and Janet Renko Rasmussen, at the Alumni Center.

We hope to hold more events like this in the future, both in a regional format and periodically back in Lawrence. (A much more complete set of photos from the day can be accessed through the Department FaceBook page – just click on the FaceBook icon in the left column.)

By all accounts, everyone attending the Reunion had a great time and ended the day suitably impressed by the progress the Department has made thanks to the dedicated efforts of the staff, faculty, and students and the support of our exceptional alumni. The last point cannot be overstated. The quality and quantity of the educational and research experiences accessible within the Department are limited primarily by one factor, the financial resources available to support students and improve research infrastructure. The generosity of our alumni over the last decade has significantly impacted the program through the creation of graduate and undergraduate

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scholarships, support for student research and attendance at professional meetings, and funds for equipment purchases for undergraduate and research labs, among a long list of items. The profile of the Department within the University has never been higher and should only improve due to the award-winning hires added to the faculty in recent years. **If you would like to help the Department to not only maintain the current level of achievement but to move to the next level**, please consider donating to one of the multiple funds set up to support the program. Simply click on the **Support KU** icon in the left column to access a complete list of the Departmental endowed funds with individual links to KUEA. There are specific funds for graduate and undergraduate scholarships, the MLO telescope, Engineering Physics, Nanotechnology, Astronomy, and Instrumentation support. If you wish to designate that your donation go to support a specific research group, it can also be arranged. If you would like to discuss your possible interest in supporting the program in more detail, please feel free to contact me at the Department at any time or **Jenna Goodman**, the KUEA liaison for the Department at jgoodman@kuendowment.org or by phone at 785-832-7471 or 800-444-4201. Have a great holiday and a happy new year!

Nobel Connection - II



In the last newsletter we noted the connection between KU alumnus Hannah (Swift) Fakhouri and co-Nobel Prize winner in Physics for 2011, Saul Perlmutter. A more direct link to the science that led to the Prize comes via KU alum **Ron Gilliland** (BA 1974 -ASTR, MATH and PHSX). Ron, who just retired from the Space Telescope Science Institute to work full time at Penn State on analysis of asteroeismology data from the Kepler Mission, was kind enough to supply some insight into the early evolution of the project and his involvement within STSCI. "From about 1996 through the early 2000s when the work for this year's physics prize was done I was a member of the High-z team (the Adam Riess and Brian Schmidt half). In 1996 I had an approved GO program on HST of an exploratory

nature to search for SNe in the Hubble Deep Field. Bob Williams (STSci Director) was approached at this time by Saul Perlmutter for Director's Discretionary Time to pursue the science behind this Nobel. Bob thought this was a great idea, and consulted me, suggesting as well that an equal amount of HST time be given to the competing, High-z team. The latter was done, and the High-z team then recruited me to be their HST expert. I accepted. My HST exploratory program worked out wildly well resulting in detection of SN1997ff, which for more than a decade would remain the highest redshift Type Ia known. I published a lead author paper in the *Astrophysical Journal* in 1999 on the discovery, and was third author with Adam Riess in the lead applying this to cosmological implications a couple of years later in 2001. This helped confirm the story from 1998 of a mysteriously accelerating expansion. Adam and Brian have invited the full membership of the High-z team as of "the paper" in 1998 to attend the ceremonies with them in Stockholm. So I will be attending the events over Dec 7-12 this year."

SEVEN and Counting!

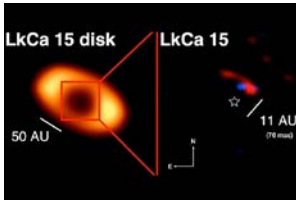
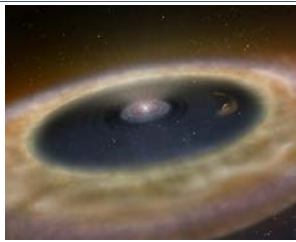


We noted in earlier newsletters that, as part of the sesquicentennial celebration of the state of Kansas, the public science group *Ad Astra* coordinated a project called *Science in Kansas, 150 Years and Counting*, highlighting 150 Kansas scientists, both **past and present**, and their contributions by providing free trading cards with information about them; the selections as of the last newsletter included six with KU ties. An additional Department alumnus was added to the list with the

October release. Check out the card for **Dr. Brian Thomas** (MS: Physics-2002; PhD: Physics – 2005) at the web site for the project

http://www.adastra-ks.org/events/150_scientists_index.html

Brian is currently an associate professor of Physics and Astronomy at Washburn



FACULTY NEWS



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University in Topeka and actively involved in collaborative research at KU on astrobiophysics.

Keep Watching the Skies – Alumnus Handles Near Misses

Colonel Lindley Johnson, (BA Astronomy 1980), had a busy few weeks going back to early November. As Program Director of NASA's Near Earth Object (NEO) office, as well as the Lunar and Planetary Science U.S. Participating Investigators (USPI) office, he had to field a lot of inquiries regarding the near miss of the asteroid YU55. If you are a PBS NewsHour regular, you may have seen him discussing the event in their *Other News* segment. If you missed it, the video is available at

http://www.pbs.org/newshour/bb/law/july-dec11/othernews_11-08.html

(Note –if you access the link, the video starts off with a discussion of the Penn State scandal and the likely firing of Joe Paterno. Be patient – the story is there!)

Departmental Alumnus Obtains First Direct Image of a Forming Planet

Dr. Adam Kraus (BS Astronomy, Math, Physics 2003) combined the power of the 10-meter Keck telescopes with a bit of optical sleight of hand, aperture mask interferometry, using a deformable mirror to rapidly correct for atmospheric



distortions of starlight. This involved placing a small mask with several holes in the path of the light collected and concentrated by the giant telescope. The astronomers then manipulated the light waves and, for the first time, directly imaged the planet LkCa 15b itself, as well as the dusty matter around it. Adam (at left) stopped by the Department last week en route to a holiday visit with family; Adam originally hails from Baldwin, KS, where the weather is a bit more aggressive than his current location in Hawaii.

Other alumni visitors to the Department included **Dr. Gul Tariq** (MS Physics 1981, PhD Physics 1984) and **Dr. Mark Phillips** (BS Physics 1987), who gave a presentation to SPS students on earning a living within the high tech industry.



Professor Named Fellow of the American Physical Society

Congratulations to **Professor Alice Bean** on being named a Fellow of the American Physical Society. All APS members are eligible for nomination and election to Fellowship. Each nomination is evaluated by the Fellowship committee of the appropriate APS division, topical group or forum. After review by the APS Fellowship Committee, the successful candidates are elected by APS Council. Fellowship is therefore a distinct honor signifying recognition by one's professional peers.



“Stellar” Research Featured on KU Today

The ongoing research program of assistant professor **Dr. Greg Rudnick** was featured on the *KU Today* website for Dec. 6. Greg is making use of the refurbished and improved EVLA to study the process of star formation among galaxies in the early Universe. Greg and his collaborators are observing one of the earliest known

clusters of galaxies, which is 10 billion light years away. Because of this "trick" of nature, he is getting a snapshot of the universe when it was 10 billion years younger than it is today, or only about 4 billion years after the Big Bang.

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