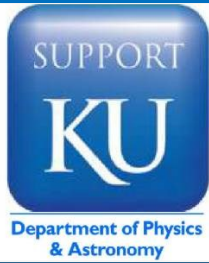
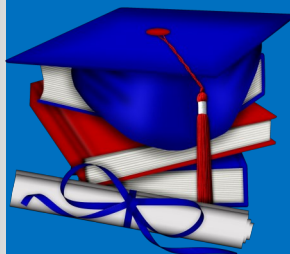


**SUMMER 2014**



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## ENDOWMENT HONOR ROLL 2013

### > \$1000

Michael L. Allen	Dr. Alice L. Bean	Dr. Gisela M. Dreschhoff
LCDR Laurence A. Eichel & Kathleen L. Hardesty		Dr. Gene R. Feaster
Paul M. Ferguson	Mary L. Hanson & James R. Hanson	Honeywell Aerospace
COL Brenda S. Johnson & LTC Lindley N. Johnson	Jack W. Lowry & Catherine G. Lowry	
Dr. Ramona Kessel & Dr. Robert A. Kessel	Colleen M. McKee & James G. McKee	
Bruce H. McKeithan & Freda McKeithan		Dr. James A. Pintar
Dr. Michael C. Rasmussen & Janet Renko Rasmussen		Justin J. Rennilson
Dr. Stephen J. Sanders	Dr. Barbara Anthony-Twarog & Dr. Bruce Twarog	

### > \$500

Dr. Robert C. Bearse & Margaret M. Bearse	Dr. Donald A. Close
Dr. Timothy A. Duman, & Michelle Leonard Duman	John V. Martonchik
Dr. Christine A. Fidler & Dr. Joseph C. Shields	Linda Dae McKay & Douglas W. McKay
Dr. Donald G. Shirk & Dr. Melanie V. Shirk	Raymond J. Shu
	Patrick L. Sterner

### > \$250

Dr. Chi Kin Lam	Dr. Donald J. Perkey & M. Nadine Perkey
Dt. Warren K. Legler	Dr. Ina Piket Robertson & Steven M. Robertson

### > \$100

Dr. Steven L. Ball	Dr. Rebecca C. Chaky	Dr. Charles Lee Francis Jr.
Dr. Dean W. Halderson & Cynthia Williams Halderson		Dr. Jack G. Hills
Dr. Gerald E. Holmberg & Margaret Cooper Holmberg		Dr. Richard F. Hubbard
Stephen F. Jancich Jr. & Cynthia Redden Jancich		Ernest A. Johnston Jr.
Dr. Delbert M. Jones	Richard G. Leamon & Yvonne M. Lazear	
Dr. Vaughn C. Nelson & Elizabeth Nelson		Dr. Tamara E. Payne
Jane Dion Preston & Dr. Daryl W. Preston		M. Diane Querry
Kristin Commer Simunac	Dr. Ronald L. Snell	David A. VanPelt

### < \$100

Dr. Kenneth C. Baile	James S. Carson & Jean S. Carson	Thomas J. Chester
Larry J. Devlin	Gary E. Hanson & Kay Blauer Hanson	George M. Henry
Karla E. Kuebler	Dr. Charles A. Lundquist	Dr. Kurt R. Moore
Allison York Pierron & Daniel C. Pierron		Dr. David R. Renneke
David W. Schudel		Allen G. Taylor & Selma A. Taylor
Raleigh K. Wilson & Roberta Jones Wilson		Dr. Jeff A. Winger

## DEGREE RECIPIENTS: 2013 - 2014

### **Engineering Physics (BS)**

Griffin Adams	Caleb Christianson	Han Zhongyi	Dustin Kerby
Jake Meeth	Phuc Nguyen	Alexander Polsley	Ben Weintrub

### **Physics (BS)**

Johnathan Croxell	Abhinav Kumar	Katrina Martin	Greg Pach
Brian Schafer	Benjamin Vail	Amie Vo	Ben Weintrub
			Jill Wenderott

### **Physics (BA)**

Yasen Ivanov	Daniel Webb	Daniel Webb
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### **Astronomy (BS)**

Abhinav Kumar	Brian Schafer	Brian Schafer (Astrobiology)
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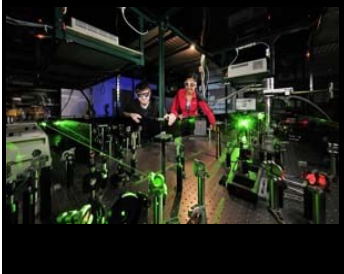
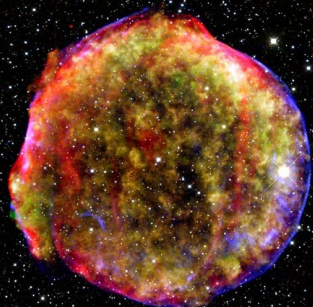
### **Astronomy (BA)**

### **Minors**

### **Physics (MS)**

Chris Gerstenkorn	Yonatan (Jonny) Israeli	Sarah LeGresley
Eddie (James) Orcutt		Matt Russell

# FACULTY NEWS

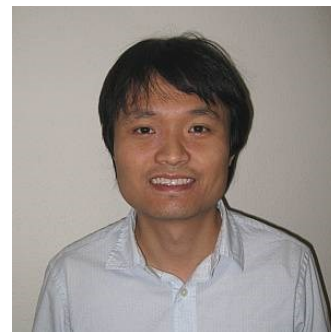


## MOMENTUM

### Renewable energy research, education project receives NSF grant

Congratulations to Asst. Prof. Wai-Lun Chan, who has been awarded a prestigious Faculty Early Career Development (CAREER) Award by the NSF for his research proposal, "Understanding the Role of Quantum Coherence in Exciton Transport and Separation in Molecular Aggregates." The award is the highest honor given by the NSF to young

researchers. His research explores fundamental materials issues related to organic semiconductors. It addresses the challenge of finding low-cost renewable energy by exploring the mechanisms that could improve the efficiency of next generation solar cells. The full press release can be accessed at [this link](#).



### CMS Group - Featured Research and a Distinguished Appointment

Congratulations to the CMS collaboration for an exciting two weeks. A research paper with lead authors Dr. Phil Baringer, grad student Danny Noonan, and Postdoc Dr. Gabriele Benelli on measurements of the top quark was featured in the CERN Courier for Feb. 24. Meanwhile, Prof. Alice Bean has been selected as a Jefferson Science Fellow for 2014. The prestigious JSF program is administered by the National Academies

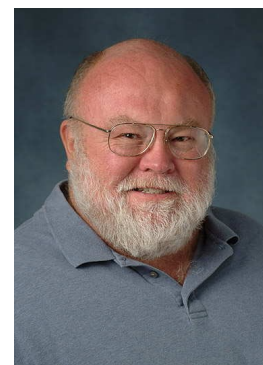
and supported through a partnership between the U.S. academic community, professional scientific societies, the U.S. Department of State and the U.S. Agency for International Development (USAID). Jefferson Science Fellows spend one year on assignment at the U.S. Department of State or USAID as science advisors on foreign policy issues. More on the program can be found at [this link](#).



### Research will gauge hypothetical disaster: a supernova close to Earth

A research team led by Dr. Adrian Melott of Physics and Astronomy has been awarded \$500,000 by NASA to make the most painstaking assessment ever of the potential damage from a near-Earth supernova. Melott is working with Dr. Andrew Overholt of MidAmerica Nazarene University and Dr. Brian Thomas of

Washburn University — both Physics and Astronomy alumni — to perform computer modeling and data analysis on supercomputers such as the National Science Foundation's Teragrid. The full press release can be accessed at [this link](#)



### Using strong lasers, investigators observe frenzy of electrons in a new material

A research team led by Dr. Hui Zhao of Physics and Astronomy has used high-powered lasers to track the speed and movement of electrons inside an innovative material that is just one atom thick. The work at KU's Ultrafast Laser Lab could help

point the way to next-generation transistors and solar panels made of solid, atomically thin materials. The full press release can be accessed at [this link](#).



## MOMENTUM

### Four Receive Undergraduate Research Awards



Congratulations to the following undergraduate students (and their advisors) for their selection for Research Awards for Spring 2014. Jill Wenderott (far left), senior-physics (Prof. Hsin-Ying Chiu), Anthony St. Aubin (far right), junior-astronomy and interdisciplinary computing (Prof. Hsin-Ying Chiu), Caleb Christianson (center right), senior-engineering physics (Prof. Judy Wu), David Gier (center left), junior-physics and computer science (Prof. Alice Bean). A complete description of their projects can be found at [this link](#).

### University announces NSF Graduate Fellowship Awardees



Congratulations to Jeremy Ims, (BS ASTR, PHSX: 2013) on his selection for an NSF Graduate Fellowship. Jeremy is at KU working toward a PhD in Aerospace Engineering under Z. J. Wang. Congratulations also to Justin Mann, doctoral student in physics under Prof. Greg Rudnick, on receiving honorable mention in the NSF competition. The full press release can be accessed at [this link](#).



### University announces October 2013- March 2014 Employees of the Month



Congratulations to Jeff Worth, Electronics technologist for the Department of Physics & Astronomy, who was selected as the KU University Support Staff Employee of the Month for October. Jeff was under consideration to be named the Employee of the Year at the annual recognition ceremony, held on May 7 in the Kansas Union Ballroom. The full press release can be accessed at [this link](#).

The logo for the Undergraduate Research Awards (UGRA), featuring the word "ugra" in a blue, lowercase, sans-serif font.



### **In Memoriam: Dr. Mary Davidson 1926 - 2014**



The Department was saddened to hear of the passing of Dr. Mary Davidson, widow of Dr. Jack Davidson, long-time faculty member and Department Chair in the 70's and 80's. Mary was a well-known figure within the KU and Lawrence community, having served for many years on the faculty of the English department while investing significant time and energy in political and social causes dear to her heart. Detailed obituaries can be found at [this link](#) for Dr. Davidson.



## Department of Physics & Astronomy

Understanding the Universe Starts Here!

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1251 Wescoe Hall Dr.  
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PH: 785-864-4626



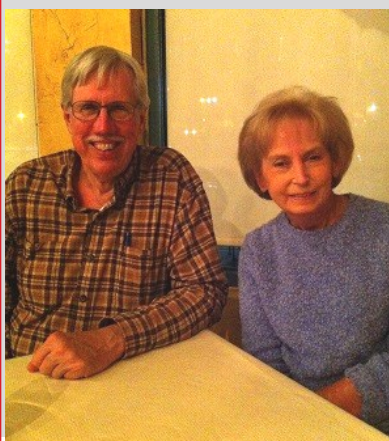
## From the Chair

Looking back over my first full year as Chair, it has been at times a chaotic but exhilarating ride, and rarely dull (not including department assemblies!). While this newsletter is filled with the usual achievements that we've come to expect from the talented group of faculty, staff, and students inhabiting Malott Hall, the only true measure of the success of the Department is summarized on pg. 1, with the list of all those receiving degrees at any level during the past year and the past graduates and departmental friends who have helped make that list possible through their

support. Our growth and progress as a Department continues due to the exceptional investments in resources made by concerned and dedicated alumni like Maynard and Carol Redeker (left), who established the Redeker Fund, one of only two endowed department funds explicitly designed to support graduate students.

On behalf of the faculty, students, and staff - many of whom attended the annual department banquet in May (right) - I'd like to express my sincere thanks to all of you who consider yourselves not only part of KU Physics and Astronomy's past, but active contributors to its future.

*Rume*



## In Memoriam



**Martin Gutzwiller**  
1925—2014

Martin Gutzwiller was born on October 12, 1925 in the Swiss city of Basel. He completed a Diploma degree from ETH Zurich where he studied quantum physics under Wolfgang Pauli. He then went to the University of Kansas and completed a PhD under Max Dresden. After graduation, he worked on microwave engineering for Brown, Boverie, and Cie, on geophysics for Shell Oil, and eventually for IBM Research in Switzerland, New York City, and Yorktown Heights, until his retirement in 1993. He also held temporary teaching appointments at Columbia University, ETH Zurich, Paris-Orsay, and Stockholm. He was Vice Chair for the Committee on Mathematical Physics, of the International Union of Pure and Applied Physics, from 1987 to 1993. He joined Yale University as adjunct professor in 1993, retaining the position until his retirement.

Gutzwiller formulated the Gutzwiller Approximation for describing electrons with strong local interactions in terms

of the Gutzwiller wave function, composed of a simple many-electron wave function acted on by a correlation operator ("Gutzwiller projection"). He was also the first to investigate the relationship between classical and quantum mechanics in chaotic systems. In that context, he developed the Gutzwiller trace formula, the main result of periodic orbit theory, which gives a recipe for computing spectra from periodic orbits of a system. He is the author of the classic monograph on the subject, *Chaos in Classical and Quantum Mechanics* (1990).

Gutzwiller was also known for finding novel solutions to mathematical problems in field theory, wave propagation, crystal physics, and celestial mechanics. In appreciation of his contributions to theoretical physics, the Max Planck Institute for the Physics of Complex Systems (MPIPKS) annually awards the Martin Gutzwiller Fellowship to acknowledge and promote exceptional research in this field.

The Physics Today obituary for Dr. Gutzwiller can be accessed at [this site](#).