

A session "How to Build a Habitable Planet--Session Title: Radiation and Habitability: Friends or Foes?" jointly proposed by **Prof. Melott** for the *Astrobiology Science Conference* to be held this June in Chicago has had such a large response that it has been scheduled for three sessions of that meeting.

In October, **Prof. Michael Murray** presented at two workshops at the *Spencer Museum of Art*. One was on how faculty can use the museum in their classes while a second was for area science and art grade school teachers.

In February, **Prof. Murray** and graduate student **James Bowen** (Lieutenant Commander US Navy) hosted a showing of the film, "The Man who Saved the World", at the Commons. The film describes how one Russian Colonel refused to launch nuclear weapons at the US when satellite data indicated that US missiles had already been launched. In April, he hosted a Nuclear Science merit badge for scouts in collaboration with **Mike Lemon** and **Alice Dale** of KU Heath Physics Department. Twenty one young scouts attended. Also in April, presented CMS results on photo-nuclear collisions at the *Deep Inelastic Scattering* conference in Dallas. At this meeting there was considerable discussion about a new electron ion collider that the US nuclear physics community would like to build.

April 7-10, **Prof. John Ralston** attended the *GHP 2015* meeting in Baltimore, where he presented a talk "An independent spectroscopic data analysis of the proton's size problem".

Professor Emeritus Steve Shawl (along with coauthors Gene Byrd [U Alabama], Michael LoPresto [Henry Ford College], and Susana Deustua [Space Telescope Science Institute] has completed the 6th edition of his introductory astronomy textbook *Discovering Astronomy*. The book has now been completed and is being used in the form of an Etext that is low-cost, readable from any web browser on any platform and ADA compliant. Integrated into the book are high-definition videos of the KU lecture demos used in his KU classes. The website is discoveringastronomy.weebly.com. The authors presented a poster at the January meeting of the *American Astronomical Society* in Seattle titled "From Picas to Pixels: An Astr 191 e-book."

Prof. Daniel Tapia Takaki gave the invited talk "Forward "Physics with Heavy Ions at the LHC" at the *High Energy Nuclear Physics with Spectator Tagging* workshop. Norfolk, Virginia. March 10, 2005 at Old Dominion University and Jefferson Lab. Also, he gave the talk "Photon-nucleus collisions at the LHC" at the 6th Workshop of the *APS Topical Group on Hadronic Physics*, April 8-10, Baltimore, Maryland.

Prof. Tapia Takaki is now the convener of the *CMS Physics Interest Group* on forward heavy-ion physics and the contact person for luminosity within the CMS Heavy-Ion Physics Analysis Group, and part of the organizing committee for *the Workshop on Forward Physics and High Energy Scattering at Zero Degrees* to be held in Nagoya,

Japan, September 9-12, 2015. He also gave a talk at the *Red Hot Research* session at the Commons on April 17.

Professor Hui Zhao presented an invited talk at the *APS March Meeting 2015* (March 2-6, San Antonio), "Ultrafast laser spectroscopy of two-dimensional materials and their heterostructures".

RECENT PUBLICATIONS

Neuenswander, B., Melott, A., Nitrate Deposition following an Astrophysical Ionizing Radiation Event, *Advances in Space Research* (2015),
doi:<http://dx.doi.org/10.1016/j.asr.2015.03.017>

"The Theory of Everything" is missing something. *Astronomy & Geophysics* (2015) 56 (2): 2.9-c-2.9. doi: 10.1093/astrogeo/atv057 (**A.L. Melott**)

Sumeet K. Dagaonkar, Pankaj Jain (Indian Inst. Tech., Kanpur), **John P. Ralston**, Uncovering the Scaling Laws of Hard Exclusive Hadronic Processes in a Comprehensive Endpoint Model *Eur.Phys.J. C*74 (2014) 8, 3000

Professors **D. Tapia Takaki** and G. Contreras, "Ultra-peripheral Heavy-Ion collisions at the LHC". *Int. J. Mod. Phys. A* 30 1542012 (2015).

Qiannan Cui and Hui Zhao, Coherent Control of Nanoscale Ballistic Currents in Transition Metal Dichalcogenide ReS₂, *ACS Nano* 9 (4), pp 3935-3941 (2015).

AWARDS (including only newly awarded ones).

Donald Lee Brown received an honorable mention for his *NSF Graduate Research Fellowship* application titled "Resolving the Cosmological Lithium Problem Through an Abundance Analysis of Super Metal Rich Field Stars." He was one of only 3 honorable mentions at the University of Kansas.

Gopolong Mohlabeng received a *Department of Physics and KU Graduate Studies Dissertation Fellowship* to fund the completion of his dissertation research. The title of his proposal was "New Physics beyond the Standard Model: Probing the Dark Sector". He also received a *University of Kansas Graduate Summer Research Fellowship* to fund his project titled "Detection of Boosted Dark Matter at Large Volume Neutrino Experiments".

James Bowen received a *Science, Mathematics, Research, and Transformation Scholarship* from the Department of Defense. It will fund his studies from August 2015 through May 2017. As a term of this scholarship, James will work for the U.S. Naval Oceanographic Office for two years following the completion of his degree.

Incoming graduate students for Fall 2015: **Samuel Lane**, a Diversity Fellowship and a Self Fellowship. The Self Fellowship is a four-year award, the most prestigious fellowship awarded by KU. **Brent Cook** and **Uzir Latif** were given University Graduate Fellowships.

Undergraduate Awards

Badgley Award: **Samantha Brunner and Pranjali Pare.**

Feaster Award: **Daniel Rhodes and Emily Smith.**

Goldwater Scholarship: Nominated by KU: **Daniel Rhodes – Honorable Mention**

Johnson Scholarship: **Daniel Kennedy**

Physics & Astronomy Department Scholarship: **Daniel Rhodes and Emily Smith**

Prosser Award: **Cesar Avalos Baddouh, Audrey Evans, Vikram Lakhanpal, and Menser Sanghera**

Stranathan Award: **David Gier**

Talty Scholarship: **Daniel Rhodes and Emily Smith**

Undergraduate Research Award: **Quincy Wofford (Spring 2015)**

University Scholar: **Audrey Evans**

DEPARTMENT NEWSLETTER--CALL FOR ITEMS: Please send your items to Adrian Melott (melott@ku.edu). It's a lot easier to use them if you make them editor-ready: Group them according to the kind of item. Use plain text or Word. Don't number them. Don't say "I visited the Sheboygan Zoo." Use your name (third person). Etc....

Department of Physics and Astronomy

University of Kansas

1251 Wescoe Dr. # 1082

Lawrence, KS 66045