

beam interaction with a diamond crystal". This talk outlined the physics and the expected energy spectrum that will result from a 4 MeV beam colliding with a cubic diamond lattice crystal with a (111) orientation.

Prof Melott attended the meeting of the *Geological Society of America* in Denver, and spoke October 27 on "Periodicities in Biodiversity and Possible Causal Factors". **Prof. Melott** also presented a Sunday lecture Sept 29 at the *Unitarian Fellowship of Lawrence*: "Death from the Skies: Astrophysical Hazards to Life on Earth." And, there was a KU press release on his recently-published work with **Drew Overholt**: <http://news.ku.edu/2013/09/05/researcher-looks-comet-potential-trigger-big-freeze>

Color Glass Condensate is not a performance art ensemble, nor a stained glass studio: **Professor Murray** visited Rio de Janeiro in August to work with Prof Magdalena Malek at the *UERJ*. Profs Murray and Malek work together on the heavy ion program of the CMS experiment at the Large Hadron Collider. In September Prof Malek returned the favor and visited Lawrence. She is working very closely with KU graduate student Pat Kenny on understanding photon-nuclear collisions at very high energy. The goal of this work is to study the gluons that hold a nucleus together. It has been speculated that at very high energy the gluons in a nucleus may condense to form a glass like structure called the Color Glass Condensate. Photons are ideal studying this system since they penetrate deep into the nucleus. This analysis relies heavily on the Zero Degree Calorimeters that were built at KU for the CMS experiment in Geneva.

Two theory students, **Maulik Nariya** and **Gopolang Mohlabeng**, attended summer schools at *IAS and SLAC*. Gopolang also visited *Fermilab* for collaborative work last summer.

Prof. Gregory Rudnick gave colloquia on "The Transformation of Galaxies in Dense Environments over Cosmic Time" at the *University of Missouri, Columbia* and *Tufts University*.

A proposal by Professors **S. Shandarin** (Chair) and R. van de Weygaert (co-Chair) from *Kaptein Astronomical Institute* at The University of Groningen, The Netherlands to the *International Astronomical Union* for an IAU Symposium on "The Zel'dovich Universe: Genesis and Growth of the Cosmic Web" has been approved. The symposium IAUS 308 will be held in Tallinn Estonia during June 23 - 28, 2014.

In mid September, graduate student **Wade Rush** traveled to *FermiLab* and participated in A0's electron beam channeling experiment. FermiLab is attempting to create soft X-Ray channeling radiation from a 4 MeV electron beam's interaction with a diamond crystal. The A0 experiment collaboration is made up FermiLab's A0 Experimental and Theoretical Acceleration Sections, Northern Illinois Center for Accelerator & Detector Development, the Vanderbilt University Physics Department and the University of

Kansas Physics Department. Wade's contribution in this ongoing experiment is to simulate the channeling radiation spectrum and possibly background coherent Bremsstrahlung spectrum.

AWARDS

Professor Siyuan Han received the *Olin Petefish Award in Basic Science* this October.

Professor Melott was named “Mentor of the Month” for September 2013 by the *KU Center for Undergraduate Research*.

Graduate student **Jenny Nielsen** was awarded a Special Commendation Prize and a \$1000 award by the *Foundational Questions Institute* for her essay “Is Bit It?”.

Graduate student **Jessica Stockham** was recently selected as an awardee of the Dr. Pliny A. and Margaret H. Price Prize in Cosmology and AstroParticle Physics by the *Ohio State University Center for Cosmology and AstroParticle Physics*. As part of the award, she's invited to visit the campus to give a seminar about the work she's been doing and receive an honorarium of \$1500.

RECENT PUBLICATIONS

“Cosmic Rays and Terrestrial Life: a Brief Review” [**D. Atri (Ph.D. 2011)** and **A.L. Melott**] *Astroparticle Physics* <http://dx.doi.org/10.1016/j.astropartphys.2013.03.001> (2013)

“Implications of a Froissart bound saturation of gamma*-p deep inelastic scattering. I. Quark distributions at ultra small x”. (Martin M. Block, Loyal Durand, Phuoc Ha and **Douglas W. McKay**) *Physical Review D* 88, 014006 (2013)

“Implications of a Froissart bound saturation of gamma*-p deep inelastic scattering. II. Ultrahigh energy neutrino interactions”. (Martin M. Block, Loyal Durand, Phuoc Ha and **Douglas W. McKay**) *Physical Review D* 88, 013003 (2013)

“Declining Volatility, a General Property of Disparate Systems: from Fossils, to Stocks, to the Stars” [B.S. Lieberman and **A.L. Melott**] *Palaeontology* DOI: 10.1111/pala.12017 (2013).

“Cosmogenic nuclide enhancement via deposition from long-period comets as a test of the Younger Dryas impact hypothesis”. [A.C. Overholt (Ph.D. 2013) and A.L. Melott] *Earth and Planetary Science Letters*, 377-378, 55-61. (2013)

DOI: 10.1016/j.epsl.2013.07.029

ALUMNI NEWS

Prof. Shahid Hussain (Ph.D. 2005) joined the faculty of *Karakorum International University*, Gilgit, Pakistan as Associate Professor, where he will be part of a team building an astronomy and astrophysics research observatory.

Professors Drew Overholt (Ph.D. 2013) and **Brian Thomas** (Ph.D. 2005) attended the annual meeting of the *Geological Society of America*, and spoke on “Cosmogenic Nuclides as a Test for Extraterrestrial Impacts”, and “Astrophysical Events as Episodic Threats to Life on Earth”, respectively. Also, **Drew** has been promoted to Associate Professor of Physics at *MidAmerica Nazarene University*.

Dr. Dimitra Atri (Ph.D. 2011) had work “Galactic Cosmic Ray–Induced Radiation Dose on Terrestrial Exoplanets” published in the journal *Astrobiology*, and highlighted as one of the two most important articles in their October issue. They also issued a press release on the paper, which has been picked up worldwide. Dimitra will be visiting our department in early December, and doing a colloquium December 9.

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....

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