



PHYSICS DEPARTMENT NEWSLETTER

(<http://physics.montana.edu>)

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PHYSICS NEWSLETTER

Compiled by:
Rose Waldon

Contributors:
Faculty, Students,
Staff, and Alumni

*Comments and
Requests should
be directed to:*
E-mail: [waldon@
physics.montana.edu](mailto:waldon@physics.montana.edu)

Mail: Rose Waldon,
Physics Dept., MSU
Box 173840,
Bozeman, MT 59717-
3840

GENERAL NEWS:

ASTRONOMY IN CHILE:

Loren Acton met with the board of directors of the Associated Universities for Research in Astronomy on 21 and 22 February in La Serena, Chile. In the days following the meeting the Board visited observatories at Cerro Tololo where for many years the 4 meter "Blanco" telescope was the largest in the southern hemisphere and the Gemini 8 meter on Cerro Pachon (near Cerro Tololo). Later they visited the Cerro Paranal site of the new telescopes nearing completion by the European Southern Observatory. Here there are 4 each 8.2 meter and 4 each 1.8 meter telescopes, all of which can operate interferometrically with one another -- in addition to a 6.4 and 4.2 meter telescopes. An amazing facility!! Finally, they visited the site of the Atacama Large Millimeter Array of 64 dishes at an altitude of 5300 meters. A desolate, totally barren, but lovely and majestic, high plateau.

MSU INVITED TO JOIN AURA:

MSU has been invited to apply for membership in the Associated Universities for Research in Astronomy (AURA). AURA manages the National Optical Astronomy Observatories at Kitt Peak and Cerro Tololo as well as the National Solar Observatory for the NSF. AURA also manages the Space Telescope Science Institute for NASA.

SPS BOOK SALE

SPS had a book sale that met with resounding success: we made over \$720. A big thanks to everyone who helped, donated books, and bid, and a HUGE thanks to George Tuthill for contributing most of the books. We are planning a trip to PNL and LIGO in Richland and Hanford, WA, respectively. The dates for the trip are tentatively Thursday, April 21- Sunday the 24th. Anyone interested in going should come to the meetings on Thursdays in EPS 252 at 5:00 PM or email pckujawa@montana.edu.

OUTREACH

The Space Public Outreach Team (SPOT) submitted a report to the Education and Public Outreach Lead for the Solar Dynamics Observatory (SDO). Already in the current semester, SPOT has reached 1030 students and 51 teachers in Montana with its presentation on the Cassini-Huygens Mission to Saturn and Titan. The achievements of SPOT's school presentations, reaching students at a much higher rate than other current SDO-sponsored E/PO efforts, are to be highlighted in SDO's E/PO report to NASA HQ. SPOT also participated in this year's Astro Fair at the Museum of the Rockies. SPOT handed out over two hundred brochures, posters and lithographs at the event and gave a presentation on Cassini-Huygens to a very receptive crowd. Undergrad and grad students interested in joining SPOT should contact Trae Winter or Angela DesJardins at spot@spacegrant.montana.edu.

AWARDS, HONORS and NEW POSITIONS:

Dick Canfield re-elected as a member of the editorial board of the journal *Solar Physics*.

Jim Manning has left his positions as Adjunct Physics Instructor and Director of the Taylor Planetarium at the Museum of the Rockies. We wish him all success in his new position as the Director of Outreach at the Space Telescope Science Institute.

Hiroto Terashita has accepted a postdoctoral position with Dr. Thomas Brueckel at the Institute for Condensed Matter Physics, Forschungszentrums Juelich, in Juelich, Germany. He will defend his Ph.D. thesis in March, and move to Germany in April of 2005.

ORAL COMPONENT OF PH.D. COMPREHENSIVE EXAM

"Piezoelectricity", Chih-Long Tsai, Feb. 15.

PUBLICATIONS SUBMITTED

"Low Order Dynamo Models", A.L. Wilmot-Smith, P.C.H. Martens, D. Nandy, E.R. Priest, S.M. Tobias, to Mon. Not. R. Astron. Soc.

PUBLICATIONS ACCEPTED

"*Electric-field effects of dielectric and optical properties in $Pb(Mg_{1/3}Nb_{2/3})_{0.65}Ti_{0.35}O_3$ crystal*", C.-S. Tu, F.-T. Wang, R. R. Chien, V. H. Schmidt, and G. F. Tuthill, *Journal of Applied Physics* **97**, to appear in March issue (2005).

"Exploring Magnetic Activity from the Sun to the Stars", Dibyendu Nandy, *Solar Physics*.

"Preservation of Bone Collagen from the Late Cretaceous Period Studied by Immunological Techniques and Atomic Force Microscopy", R. Avci, MH Schweitzer, RD Boyd, JL Wittmeyer, FT Arce, and JO Calvo, to appear in *Langmuir* (2005) (Web release date is March 5, 2005)

PROPOSALS SUBMITTED

"IGERT: Science-Driven, Space- Directed Sensor Systems Engineering", NSF, Piet Martens Co-PI, (IGERT prep-proposal).

"Magnetic Helicity & Solar Activity" NASA SRT Solar and Heliospheric Physics, \$351,231, Dibyendu Nandi with Dick Canfield and Dana Longcope as Co-Is.

ABSTRACTS SUBMITTED:

"Self and Mutual Helicities in Coronal Magnetic Configurations", S. Regnier, R. C. Canfield, Spring AGU/SPD meeting, New Orleans.

"Relativity in the Physics Curriculum: Where, When, and What?", W. A. Hiscock, invited, Forum on Education, APS April meeting, Tampa, Florida.

INVITED and CONTRIBUTED TALKS

"Studying the Sun's Magnetic Field by Theory and Observation", Dana Longcope, CLS Works in Progress Seminar, Feb. 4.

"Impact of synchrotron research on magnetic materials research", Yves Idzerda, Basic Energy Sciences Review of the Advanced Light Source in Berkeley, Feb. 4.

"Exploring Mars: Past, Present, and Future", Bill Hiscock, AstroFair Keynote, Museum of the Rockies, Feb. 26.

"Inhibition of nonspecific events in chemical force microscopy" the group members involved in this work are: Z. Suo, F. Teran Arce, K. Thielges, and B. Spangler, VII. Annual Linz Winter Workshop on Single Molecule Techniques in Biophysics and Drug Discover, February 4-7, 2005, Linz, Austria..

"Adhesion, Deterioration and Microelastic Properties of Fouling Release and Antifouling Surfaces in Seawater", the group members involved in this work are: F. Teran Arce, I. Beech, Z. Suo, K. Cooksey and B. Cooksey, The Adhesion Society, 28th Annual Meeting, February 13-16, 2005, Riverview Plaza Hotel, Mobile, AL 36602.

POSTER PRESENTATIONS

"Phase stability and piezoelectric resonance after an electric-field poling in $Pb(Mg_{1/3}Nb_{2/3})_{1-x}Ti_xO_3$ crystals", V. Hugo Schmidt, R. R. Chien, Chi-Shun Tu, and F.-T. Wang, 2005 Workshop on Fundamental Physics of Ferroelectrics, Williamsburg, Virginia, February 6-9, 2005.

COLLOQUIA

"Stardust under the microscope", Rhonda Stroud, Naval Research Lab, Feb. 4.

"Plasma Rocket Science at NASA Johnson Space Center", John V. Shebalin, NASA Johnson Space Center, Houston, Texas, Feb. 11

"Clickers in the Classroom", Larry D. Kirkpatrick, Department of Physics, Montana State University, Feb. 18.

"Laser Polarized Noble Gas NMR and its application to biomedical and materials science", Ross W. Mair, Harvard-Smithsonian Center for Astrophysics, Feb. 25.

SEMINARS

Relativity-Astrophysics Seminar

"MHD Turbulence in a Rotating Frame of Reference", Dr. John V. Shebalin, NASA JSC, Houston, Feb. 11.

“Superfluid Dynamics in Neutron Stars”, Steve Price, Feb. 16.

“Yet Another Approach to Feynman Integrals”, Hector Calderon, Feb. 23

Solar Journal Club

"Patterns and Dynamics of Solar Magnetic Fields and Hel Coronal Holes in Cycle 23", by Pat McIntosh, Piet Martens, Feb. 8

TRAVEL

Recep Avci attended and gave a presentation at the VII Annual Linz Winter Workshop held in Linz, Austria, Feb. 2-10.

Ezana Negusse attended the National Conference of Black Physics Students held in Chicago, IL, Feb. 3-6. He then attended the National Society of Black Physicists Conference held in Orlando, FL, Feb. 16-20.

Yves Idzerda gave a presentation at the Basic Energy Sciences Review of the Advanced Light Source in Berkeley, CA, Feb. 3-5. He also chaired the Proposed Study Panel of the Advanced Light Source, Feb. 10-12.

Bill Hiscock attended a meeting of the Aerospace States Association in Washington, DC, Feb. 8-11; he also had several meetings at NASA HQ.

Hugo Schmidt attended and presented a poster at the 2005 Ferroelectrics Workshop held in Williamsburg, VA, Feb. 4-13.

Galina Malovichko gave a presentation at the 2005 Ferroelectrics Workshop held in Williamsburg, VA, Feb. 4-13.

Jerry Lapeyre traveled to Berkeley, CA, Feb. 17-21, to conduct experiments and collect data at the Advanced Light Source.

UPCOMING EVENTS

Candidates for the faculty position in Observational Solar Physics will be on campus beginning Monday, March 28th, and finish up on Tuesday, April 5th. The candidates are: Jiong Qiu from the Big Bear Solar Observatory (NJIT), Marcelo Lopez-Fuentes from the US Naval Research Laboratory, and Jeongwoo Lee from the Center for Solar-terrestrial Research (NJIT). Watch for email and check the “today” bulletin board for candidate itineraries.

Spring is Here!



5:34 AM MST March 20, 2005