Montana State University has been accepted as the 42nd member of the LIGO Scientific Collaboration (LSC).

LIGO, the Laser Interferometer Gravitational wave Observatory, which operates two facilities in Hanford, Washington and Livingston, Louisiana, is the largest scientific project every undertaken by the National Science Foundation. The interferometers, with four-kilometer long arms, are the world’s largest vacuum systems. Searching for gravitational waves, LIGO seeks to measure displacements of the end-station mirrors by distances smaller than the size of an atomic nucleus.

LIGO Hanford Observatory

MSU’s application was spearheaded by Neil Cornish. Membership in the LSC provides access to LIGO data for Cornish and Tyson Littenberg, one of his graduate students. It also opens the door for other members of the MSU Physics Relativity group to become involved in the LSC in the future. Indirect evidence for the existence of gravitational waves was already cited in the 1993 award of the Nobel Prize in Physics. Within the next five years, planned upgrades to LIGO should provide the first observations in the new field of Gravitational Wave Astronomy.
PEOPLE

• George Tuthill has departed for retirement in New Hampshire. Professor or Dean, we miss him!
• Larry Springer has joined the Space Science and Engineering Lab as a Senior Research Engineer.
• Sherry Heis joins the Physics Office staff as our new Travel Coordinator.

AWARDS, HONORS, AND NEW POSITIONS

Jiong Qiu received the 2007 Karen Harvey Prize, which is awarded by the Solar Physics Division of the American Astronomical Society in recognition for a significant contribution to the study of the Sun early in a person's professional career.

Dick Smith has been awarded the 2007 MSU Provost's Award for Undergraduate Research/Creativity Mentoring.

Yves Idzerda received the 2007 MSU Cox Faculty for Creative Scholarship and Teaching.

Bill Hiscock has been elected to serve a two-year term as vice-Chair of the Aviation Committee of the Aerospace States Association (ASA). ASA is a national bi-partisan scientific and educational organization of Lieutenant Governors and Governor-appointed delegates.

Sytil Murphy was named the 2007 College of Letters and Sciences Outstanding Teaching Assistant for Sciences.

Christoffer Renner received the 2007 College of Letters and Science Dean's Award for Excellence as the Outstanding Graduating Senior in Science.

Maria Kazachenko was awarded a NASA Earth & Space Science Fellowship for 2007/2008 to study “Creation of Twisted Flux in Solar Eruptions”.

Silvina Guidoni was awarded a Solar Physics Division Studentship Award by the American Astronomical Society for travel assistance to 2007 SPD annual meeting.

Physics Department Annual Awards:

Neil Cornish received the Outstanding Faculty Colleague (“Hugo Schmidt”) Award.

Carla Riedel received the OGLI (Outstanding Graduate Level Instructor) Award, conferred by the Physics graduate students.

Glenda Winslow received the Outstanding Staff Member (“Mark Baldwin”) Award.

Cami Collins and Eric Greenfield received this year’s AJM Johnson awards as the Outstanding Graduating Seniors in Physics.

Hector Calderon and Camas Key received this year’s Outstanding Graduate Teaching Assistant awards.
THESIS DEFENSE


PUBLICATIONS

Submitted


“Magnetic Helicity, Coronal Heating and Solar Flaring Activity: A Review of the Role of Active Region Twist”, D. Nandi. (Submitted to Astronomy Society of the Pacific)

“The Sensitivity of Hybrid Differential Stereoscopy for Spectral Imaging”, C. E. DeForest and C. C. Kankelborg. (Submitted to APJ Supplement Series)


Published


PROPOSALS SUBMITTED


PROPOSALS FUNDED


PRESENTATIONS

Invited Talks

“Characterization of nonlinear optical crystals by the EPR”. G.Malovichko, V.Grachev, M.Meyer, J.Jorgensen, T.Rust. Technical Interim Meeting at Goddard Flight Space Center (NASA), April 3-4

“Observation and Modelling of Solar Active Region Magnetic Helicity: Implications for Subsurface Dynamics and Eruptive Activity”, Dibyendu Nandi, National Solar Observatory Sac Peak Workshop 24, April 16-20


Contributed Talks

“Immobilization and Patterning of Live Bacteria” R. Avci and Z. Suo, JEJU International Scanning Probe Microscopy, Jeju Island, South Korea, June 10-14. Also presented at Seeing the Nanoscale V International Conference, Santa Barbara, CA, June 24-27.


“Dimensional Crossover in Li0.9Mo6O17”, C.A.M. dos Santos, M.S. da Luz, B.D. White, J.J. Neumeier, J.A. Souza, Yi-Kuo Yu, Encontro Nacional de Fisica da Matéria Condensada, São Lourenço, Brazil, May 7-11.
Posters


REU PROGRAMS

Solar Physics/Astronomy and Space Physics REU Program

Participants in this years program included 12 undergraduates:
* Murphy Breyfogle, Physics, University of Montana
* Daniel Bruder, Physics, Michigan State University
* Christopher Daly, Applied Physics, New Jersey Institute of Technology
* Philip Fernandes, Physics, University of New Hampshire
* Nicholas Hill, Physics, Grinnell College
* Sarah Joy, Physics, University of Florida
* Chris Lowder, Physics, Georgia Institute of Technology
* Daniel Mardit, Physics & Astronomy, State University of New York, College at Geneseo
* Joshua Swanson, Physics, Saint Cloud State University
* Peter Wyper, Mathematics and Theoretical Physics, University of St. Andrews

3 graduate students
* Letisha McLaughlin, Physics, University of North Carolina Wilmington
* Lynsey Thornton, Mathematics, University of St. Andrews
* Anthony Yeates, Mathematics, University of St. Andrews

Mentors and projects included:
* Angela DesJardins and Jiong Qiu: High Energy Solar Flares
* Jiong Qiu and Richard Canfield: Magnetic reconnection in solar eruptive events
* Dibyendu Nandi: Modeling the Solar Magnetic Cycle and Irradiance Variations
* Charles Kankelborg: Extreme ultraviolet optics for space flight.
* Dana Longcope: Magnetic Interactions and Energy Storage
* B. Ravindra and David McKenzie: Satellite Measurements of Magnetic Wave Heating of the Solar Corona
* Dibyendu Nandi and Richard Canfield: Measurement and Analysis of Solar Active Region Twist
* David Klumpar: Space Hardware Development: Satellites and High Altitude Balloons
* Charles Kankelborg: Numerical modeling of solar magnetic fields.
Condensed Matter and LASER Physics REU Program Participants – Summer 2007

Joseph Bari, St. Olaf College, Northfield, MN; Research Advisor - Dr. Richard Smith
Project: Interdiffusion of Metallic Bilayers

Ann Deml, University of Wisconsin - River Falls; Research Advisors - Drs. Carlos dos Santos and John Neumeier
Project: Quasi-One Dimensionality in SrNbO3.41 and LaTiO3.41 Compounds

Mary Keany, Maui Community College, Kahului, Hawaii; Research Advisor - Dr. Recep Avci
Project: Visco-Elastic Response of Live Bacteria
Alanna Keith, University of North Dakota; Research Advisor - Dr. Hugo Schmidt
Project: Comparing Synthesis Routes of Materials for Solid Oxide Fuel Cells

Stephanie Keith, University of North Dakota; Research Advisors - Drs. Mikhail Drobijev and Aleks Rebane
Project: Building Proteins for Applications in Laser Physics

Brandon May, Skidmore College, Saratoga Springs, NY; Research Advisor - Dr. Alan Craig
Project: Modelocked LASER Construction and Applications

Anna Tapio, College of St. Benedict, St. Joseph, MN; Research Advisors - Dr. Pete Roos and Dr. Randall Babbitt

Cerie Turner, University of Missouri - Rolla; Research Advisor - Dr. Stephen Sofie
Project: Synthesis of Materials for More Efficient Fuel Cell Anodes

Condensed Matter and LASER Physics Research Experience for Teachers (RET) Program Participants – Summer 2007

Suzie Flentie, Lewistown Junior High School; Advisor - Dr. Yves Idzerda
Project: Solid Oxide Fuel Cell Research

Sarah Hall, Baker Prairie Middle School, Canby, Or; Advisor - Dr. Hugo Schmidt
Project: Solid Oxide Fuel Cell Research

TRAVEL

Loren Acton and David McKenzie attended the Workshop on Initial Results from Hinode in Memory of Tako Kosugi at the National Astronomical Observatory in Tokyo, Japan, April 11-May 3.

Bill Hiscock attended the April APS meeting in Jacksonville, Florida, April 13-17.

Sabrina Savage conducted Hinode XRT operations in Sagamihara, Japan, April 18-May 7.

Aki Takeda attended TRACE Operations meeting in Greenbelt, MD, April 23-27.

Alan Craig & Dick Smith accompanied the Society of Physics Students on the student trip to Calgary, Alberta, April 12-14. SPS students and faculty visited the Rotheny Astrophysical Observatory, the Isotope Science Laboratory, the Seaman Family MR Centre, the Atomic, Molecular and Optical Physics Labs and the University of Calgary Physics Department.

Dave Klumpar participated in the CubeSat Developers Workshop in Huntington Beach, CA, April 18-21.


Dibyendu Nandi attended the 24th National Solar Observatory Sac Peak Workshop on Subsurface and Atmospheric Influences on Solar Activity at Sunspot, NM, April 16-20.

Bill Hiscock attended the annual meeting of the Associated Universities for Research in Astronomy (AURA) as MSU’s campus representative, Tucson, Arizona, April 25-28. While in Tucson, he also met with colleagues at the U. Arizona Lunar and Planetary Laboratory for discussions of future student payload opportunities on NASA PI-led space science missions.
Dibyendu Nandi attended the American Geophysical Union General Assembly in Acapulco, Mexico from May 22-25.


Galina Malovichko and Valentyn Grachov attended the NW APS meeting in Pocatello, ID, May 17-20.

Ravindra Belur, Lewis Fox, Silvina Guidoni, Charles Kankelborg, Tyson Littenberg, Piet Martens, David McKenzie, Jiong Qiu, Thomas Rust, Sabrina Savage and Jason Scott attended the American Astronomical Society Solar Physics Division meeting in Honolulu, HI, May 27-June 5.

Aleks Rebane attended the 7th International Conference on Optical Probes in Turku, Finland, May 16-June 22.

Bill Hiscock attended the annual meeting of the Idaho Space Grant Consortium at Idaho State University, Pocatello, June 5-6.

Recep Avci and Zhiyong Suo visited the Synchroton Radiation Facility and the Laboratory of Nano-Biological Research and Safety at the Institute of High Energy Physics of Chinese Academy of Sciences in Beijing, China, June 14-22, where Recep discussed the activities of ICAL.

Recep Avci and Zhiyong Suo visited Aguila Technologies in San Marcus, CA, June 24-27 to collaborate on CZT project. They also visited VEECO Instruments Inc. for a discussion on advances in the next generation biological AFM systems.

Ben White attended the Summer School on Methods and Applications of Neutron Spectroscopy at the NIST Center for Neutron Research in Gaithersburg, MD, June 25-29.

Keiji Yoshimura attending the VSO meeting in Boulder, CO on June 14.

Jiong Qiu attended an NSF workshop in Washington, DC, June 10-13.

Dana Longcope attended a Flux Emergence Workshop in St. Andrews, UK, June 14-17.

VISITORS

Dr. Rohta Takahashi of Japan assisted Sachiko Tsuruta in her research from mid-April through mid-June.

Professor Yongchen Sun of the University of South Dakota visited Rufus Cone and Charles Thiel for experiments and collaborative writing during June.

Duncan MacKay of St. Andrews, UK collaborated with Dana Longcope during June. He also served as a mentor for several of the solar REU students.
OUTREACH

Angela DesJardins, Sytil Murphy, Ann Seitel and Shannon Willoughby made presentations at the Expanding Your Horizons: Motivating Young Women in Science + Mathematics workshop in Bozeman, MT, April 14.

Charles Kankelborg visited the Townsend public schools on April 3. He spoke to three 2nd grade classes on Astronomy as a career. He talked about the MOSES rocket mission to the 7th grade science students and the high school physics class.

On April 25, Charles Kankelborg gave a tour of the MOSES lab and Brian Larsen showed the SmallSat lab to physics students from Three Forks High School.