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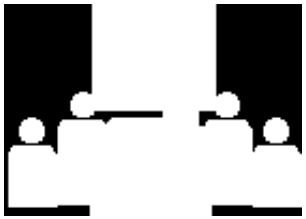
CHUN LIN SYMPOSIUM

OCT. 13-14, 2000



The symposium to honor former OU professor Chun Lin will occur on Friday and Saturday, October 13-14, 2000. According to Deborah Watson, who is in charge of organizing the symposium, the schedule will include scientific sessions Friday afternoon and all day Saturday, along with a public lecture Friday night and a banquet Saturday night to end the gathering. For further information, please contact Deborah at watson@nhn.ou.edu.

ALUMNI NEWS

Doug Fowler, who graduated in 1974 as one of the Department's first Astrophysics majors, writes: "I went into the military, per the government's plan. In 1978 I entered the University of Texas at El Paso. There I received a BSEE in 1980 and a MSEE in 1981 with a 4.0 gpa. I also received the engineering Best Thesis Award. My most gratifying achievement was developing a new EM laboratory course and setting up the EM laboratory at UTEP to help students demonstrate and visualize microwave and other EM phenomena. I owe all of these achievements to the foundation work done by Dr Herczeg in teaching the value of the experimental/ investigative process.

"Currently, I am the Director of New Business and DARPA programs at Raytheon Systems Company. I hold several patents on antenna systems and manage many new EM technology development efforts. My early experiences with Dr. Herczeg and the OU Physics Department gave me the

ability to develop insights into problems that most engineers do not have. I still have a love for astronomy and try to stay current by reading internet articles. I would like Dr Tibor Herczeg to know that he has made a difference in this life and I will be eternally grateful for his time that he spent with me during my early years."

* * *

Numerous Department alumni seem to be infiltrating the University of Arizona. Recent astrophysics undergrads Jennifer Millard (formerly Jennifer Deaton BS 1998), Myra Blaylock (BS 1999), and Justin Thiessen (BS 1999) are now graduate students in the Physics Department at Arizona. In addition, former Astro PhDs Tim Young and Doug Miller are now postdocs in that same department. Rumor has it that Jennifer Millard received a teaching award at UofA this year.

FRONT OFFICE NEWS

Danette Miller got married to long-time significant other, Robert, on September 22, 1999. Her new last name is Loyd.

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Grettie Bondy is chair of the Staff Senate Staff Week Committee this year and was recently elected Chair-Elect for Staff Senate for the 1999-2000 academic year.

RESEARCH NEWS

Papers Published

"Avoided crossings of diamagnetic hydrogen as functions of magnetic field strength and angular momentum", J.R. Walkup, M. Dunn, and D.K. Watson, Phys. Rev. A, 58, 4668, (1998).

"High-mobility electron systems in remotely-doped InSb quantum wells," K.J. Goldammer, S.J. Chung, W.K. Liu, M.B. Santos, J.L. Hicks, S. Raymond, and S.Q. Murphy, Journal of Crystal Growth 201/202, 753 (1999).

"A study of factors limiting electron mobility in InSb quantum wells," S.J. Chung, K.J. Goldammer, S.L. Lindstrom, M.B. Johnson and M.B. Santos, Journal of Vacuum Science and Technology B17, 1151 (1999).

"Search for Charged Higgs Bosons in Decays of Top Quark Pairs", M. Strauss, P. Gutierrez, and G. Kalbfleisch, Phys. Rev. Lett., 82, 4975 (1999).

"Search for bottom squarks in pbarp collisions at sqrt(s)= 1.8 TeV", M. Strauss, P. Gutierrez, and G. Kalbfleisch, Phys. Rev. D Rapid Comm., 60, 031101 (1999).

"Studies of WW and WZ Production and Limits on Anomalous WWgamma and WWZ Couplings", M. Strauss, P. Gutierrez, and G. Kalbfleisch, Phys. Rev. D, 60, 072002 (1999).

"Mode-by-Mode Summation for the Zero-Point Electromagnetic Energy of an Infinite Cylinder", K.A. Milton, A.V. Nesterenko, and V.V. Nesterenko, Phys. Rev. D 59, 105009-1--9 (1999).

"Can the Effective Charge by Symmetrical in the Euclidean and the Minkowskian Regions?", K. A. Milton and I. L. Solovstov, Phys. Rev. D 59, 107701-2 (1999).

"Gross-Llewellyn Smith Sum Rule in the Analytic Approach to Perturbative QCD", K. A. Milton, I. L. Solovtsov, and O. P. Solovtsova, Phys. Rev. D 60, 016001-1--8 (1999).

"Identity of the van der Waals Force and the Casimir Effect and the Irrelevance of These Phenomena to Sonoluminescence", I. Brevik, V. N. Marachevsky, and K. A. Milton, Phys. Rev. Lett. 82, 3948-3951 (1999).

"A Non-LTE Spherical Line-Blanketed Stellar Atmosphere Model of the Early B Giant beta CMa", J. P. Aufdenberg, P. H. Hauschildt, and E. Baron, MNRAS, 302, (1999), 599--611.

"Spectroscopy of Low Metalicity Giant H II Regions: A Grid of Low Metalicity Stellar Atmospheres", S. Pistinner, P. H. Hauschildt, D. Eichler, and E. Baron, MNRAS, (1999), 302, 684--692.

"Limits on the Violation of the Pauli Principle by Nucleons", E. Baron, R. Mohapatra, and V. Teplitz, PRD, 59, (1999), 0306003-1--4.

"The NextGen Model Atmospheres Grid for 3000 < Teff < 10,000 K", P. H. Hauschildt, F. Allard, and E. Baron, Ap. J., 512, (1999) 377--385.

"Monte Carlo Simulation of the Galactic Al-26 Gamma-Ray Map", E. Lentz, D. Branch, and E. Baron, Ap. J., 512, (1999), 678--682.

"On the Spectrum and Nature of the Peculiar Type Ia Supernova 1991T", A. Fisher, D. Branch, K. Hatano, and E. Baron, MNRAS, (1999), 304, 67--74.

"Ion Signatures in Supernova Spectra", K. Hatano, D. Branch, A. Fisher, J. Deaton, and E. Baron, Ap. J. Suppl., (1999), 121, 233--246.

"R-Process Abundances and Chronometers in Metal-Poor Stars", J. J. Cowan, et al. Astrophys. J., 521, 194 (1999)

"Supernova Birth for a Black Hole", J. Cowan, Nature (News and Views), 401, 124 (1999).

"Improved large-N limit for Bose-Einstein condensates from perturbation theory," D. K. Watson and B. A. McKinney, Phys. Rev. A 59 4091 (May 1999).

"The Distribution of Heavy Elements in Spiral and Elliptical Galaxies", R.B.C. Henry and G. Worthey, Pub. Astr. Soc. Pacific, 111, 919 (1999), invited review.

"First Observation of the Decay B0-->D*+D*+"; M. Artuso, P. Skubic, et.al., CLEO collaboration; Phys. Rev. Lett. 82, 3020 (1999).

Grants Awarded

Ed Baron and David Branch: Multi-wavelength Studies of Supernovae, NASA, $50,000

Ed Baron, Detailed Spectral Modeling of Supernovae, NSF, $65,000.

David Branch: $10,000 from Harvard University for the Supernova INtensive Study (SINS) during Hubble Space Telescope Cycle 8

John Cowan: NASA - Space Telescope Science Institute for research projects titled "Abundances in Halo Stars and Galactic Element Formation" for $39,754, and "CS22892: A Rosetta Star for the Age and Early History of the Galaxy" for $16,403.

Pat Skubic, George Kalbfleisch, Phil Gutierrez, and Mike Strauss: DOE Year two grant renewal, "University of Oklahoma-High Energy Physics-Tasks A, C, E, and MM"; $380,000.

Meetings

Ted Mansell: 11th International Conference on Atmospheric Electricity at Gunterssville, Alabama. Presented a poster titled "A Comparison of Simuated and Observed Lightning in Supercell Storms" (E.R. Mansell, D.R. MacGorman, J.M. Straka, C.L. Ziegler)

Ed Baron: Aspen Center for Physics Workshop on Type Ia Supernovae June, 1999

John Cowan: American Astronomical Society Meeting in Chicago, June. Paper presented was J. J. Cowan, et al. “Abundances in the Ultra-Metal-Poor Halo Giant CS 22892--052: Implications for the Production of Neutron-Capture Elements in the Early Galaxy.”

Mike Santos: Poster entitled "Electronic Characterization of InSb Quantum Wells" at the 9th International Conference on Modulated

Semiconductor Structures held in Fukuoka Japan from July 12 to 16.

Mike Strauss: Moriond QCD, March 20-27, 1999 in Les Arcs, France. Mike gave two talks: "Photon Production at the Fermilab Tevatron," and "Color Singlet Exchange at the Tevatron."

Pat Skubic: ATLAS pixel detector workshop at the Physics Institute in Prague, during May 30-June 6 along with Rusty Boyd.

Talks

Mike Santos: Colloquium at the University of the Philippines, National Institute of Physics on July 7. It was entitled "Fabrication and Electronic Properties of InSb Quantum Wells."

Kim Milton: The Search for Magnetic Monopoles, University of Washington, Seattle, May 27, 1999.

David Branch: In May David Branch presented an invited talk, "Supernova Spectroscopy", at the Space Telescope Science Institute Symposium on Supernovae and Gamma Ray Bursts, the Largest Explosions Since the Big Bang.

Mike Strauss: Talk at Grayson County College, September 23, 1999 on "A High-Energy Overview of the Structure and Origin of the Universe."

Pat Skubic: Invited talk at the workshop QCD99 representing the CLEO collaboration; July 7-12; Montpellier, France; "Recent Results from CLEO on D and B Decays"

Research Travel

Kim Milton: In addition to visiting the University of Washington in May, Kim spent a week in UCLA in July, working on Casimir effect problems and finishing up archival work for the Schwinger biography. In June he spent a week in Boston, carrying out extensive interviews of many colleagues and friends of Schwinger for the same biography.

Chris Stockdale and John Cowan: Traveled to the new Very Large Baseline Array (VLBA), Socorro, NM, Oct 27 - Nov 4, to observe and reduce data from SN 1961V.

Ed Baron: August 1999, Univ. of Georgia to visit Peter Hauschildt. 16 hour days spent on the next version of our code to make the world safe for spectral modeling.

John Cowan: Research trip to the University of Texas to collaborate with Chris Sneden on HST research projects in May; and Space Telescope Science Institute, Baltimore, to work on HST projects with the research staff there in June.

Mike Strauss: June 27-July 2, D0 collaboration Meeting, Seattle, WA., plus many trips to Fermilab.

Pat Skubic: To CERN during July 20-28 to work on ATLAS pixel detector beam tests along with Horst Severini and Joel Snow.

Dick Henry: Visited colleague Chantal Balkowski at the Observatoire de Paris, Meudon, for a two weeks, July 10-24, to work on a new project and a related telescope proposal.

Visitors Hosted

Kim Milton: Carl Bender, in April; they worked on PT symmetric quantum field theories.

David Branch: Dr. Yulei Qiu of Beijing Astronomical Observatory visited the department for a week in May to work with our supernova research group.

John Cowan: Friedel Thielemann came from Basel, Switzerland, to collaborate on their graduate textbook and on several research projects. (Sept.)

Dick Henry: Michael Rosa visited from European Space Agency, Munich. (Sept.) Michael gave a colloquium and a public lecture featuring HST images.

READING MILTON

The Schwinger biography,with Kim Milton as one of the authors, is finished. Oxford University Press is currently copy editing the manuscript, and the authors hope that it will appear early next year, at least in time for the April Meeting of the APS.

TEACHING NEWS

Kim Milton: "I am teaching Modern Physics for Engineers, 3223, this semester, and am putting all my lectures, homework solutions, and the like on the web. It seems to be effective, at least I hope it is, because it is quite time-consuming to type everything in."

Ed Baron: "I put my lecture notes on the Web for Astronomy 1504, the students seemed to like it and my colleagues at other institutions are happily taking and refining them."

Mike Strauss: "I've introduced "Context Rich Problems" into the classroom now. The jury is still out on their effectiveness, but I think they are helping the students solve problems. So I am now using web-based reading tests, in class participation via interactive multiple choice questions, and context rich problem solving."

PREPRINT RESEARCH

From Eric Abraham: "This summer we successfully cooled and trapped rubidium atoms. We collected about 1 to 10 million atoms at a temperature less than 0.001 degrees above absolute zero. This is the starting point for our first series of experiments: to transfer the atoms into a 'Laguerre-Gaussian laser beam' laser trap. These laser beams, and thus the trap geometries, form single rings or concentric, multiple rings. We are developing a new method of creating these laser beams using diffractive optics, and our initial results indicate mode purities and mode conversions equal to published values using other methods. With some optimization, we hope to improve these qualities above those possible with other methods."

From Pat Skubic: “The CLEO experiment is reporting new limits on D0-D0bar mixing which are currently the best available. Our results which I presented at QCD99 and which have been presented at other summer conferences by others are consistent with predictions of the standard model.”

Happy Holidays!!!