College of Physical and Mathematical Science

Newsletter

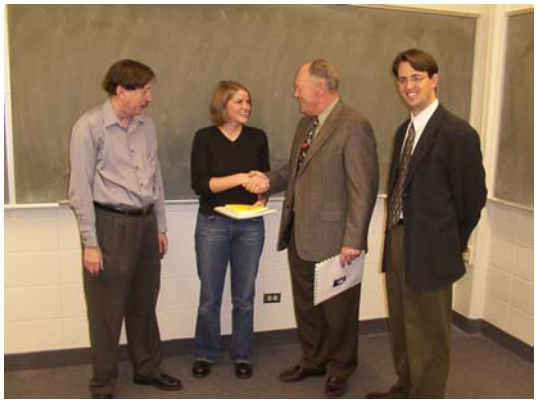
November 2002

...College News...

3rd Annual George and Caroline Arfken Physics Scholar

Prof. Bill Evenson, of the Physics Department, has been appointed the 3rd Annual George and Caroline Arfken Physics Scholar in Residences at Miami University (Ohio). Prof. Evenson will visit Miami University from November 3-8, 2002, to give lectures and meet with faculty and students. He will give a public lecture, "The Discovery of Radioactivity and Randomness in Nature," a Physics Seminar, "Size-dependent melting of self-assembled indium nanostructures," and a Short Course on "Perturbed Angular Correlation with Time-Dependent Perturbations." Prof. Evenson's extensive research activity and collaborations in nanoparticle physics and nuclear condensed matter physics led to this honor.

Math graduate student receives Waldemar J. Trjitzinsky Scholarship



Julie Brinton, a first-year graduate student in the Department of Mathematics, has been awarded the prestigious Waldemar J. Trjitzinsky Scholarship by the American Mathematical Society. Julie received the $4,000 scholarship at the beginning of Fall Semester and a formal presentation was made October 14, 2002, by the Department of Mathematics on behalf of the AMS.

The AMS selects a few universities in the United States each year and invites their departments of Mathematics to nominate a student to receive this scholarship. Julie's outstanding performance as an undergraduate earned her the nomination and the scholarship.

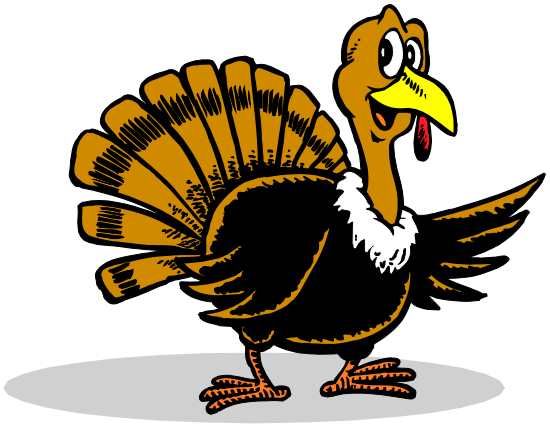
The Trjitzinsky Scholarships have been awarded each year since 1988. This is the first year that Brigham Young University has been invited to submit a nominee.

Julie stated that Dr. Rodney Forcade, the undergraduate coordinator in the Math Department, informed her that she had been nominated by the Math Department faculty to be considered for this scholarship. Although happily surprised to learn of the nomination, she also added that it was very humbling to know someone had thought enough of her to consider her for this award. She is very grateful to whoever nominated her. She commented, "I felt very honored, and grateful to receive this award. It opened the door for me to pursue a Masters degree this year. Prior to learning of this award, the decision to begin my Masters degree at BYU was a complicated one. I didn't think it was financially, or logistically possible, since I knew my husband and I would be moving in less than a year. I had decided against even trying. After learning of this scholarship, and talking to Dr. Garner (the department chair) about the possibilities of finishing in one year, I decided it would be financially feasible to begin the program this year, at BYU. I am grateful to Dr. Garner and Dr. Jarvis (graduate coordinator) who really bent over backwards brainstorming ways to feasibly complete my program in one year. It would not be possible for me to finish in a year without their help, and this award. I would not be able to take as many classes as I needed, as fast as I needed, if I felt financial pressure to work more."

When asked what she planned to do with the money, she replied, "I have already used some of it to buy books. I am trying to finish my Masters degree in one year, and plan to use the scholarship to supplement my income so I won't have to work as much. This will enable me to take a heavier load of classes and finish in one year."

International Conferences on Conceptual Modeling

David W. Embley, of the Computer Science Department, has been elected chair of the Steering Committee for the International Conferences on Conceptual Modeling for the term, Oct 2002 - Oct 2004. His responsibilities include seeing that conference organizers successfully run the annual international conferences for the next two years, presiding over the selection of organizing committees, and providing guidance for the organization of conferences from 2005 through 2007.



College Publications

Department of Chemistry and Biochemistry

D. Boda, D.J. Henderson and D.D. Busath, "Monte Carlo Study of the Selectivity of Calcium Channels: Improved Geometrical Model," *Mol. Phys.* **100**, 2361-2368 (2002).

D. Boda, D.D. Busath and D.J. Henderson, " Simulation of the Selectivity of a Calcium Channel," *Appl. Surface Sci.*, **196**, 154-156 (2002).

D. Gillespie, W. Nonner, D.J. Henderson and R.S. Eisenberg, "A Physical Mechanism for Large Ion Transport of Ion Channels," *Physical Chemistry Chemical Physics*, **4**, 4763-4769 (2002).

Y. Yang, D.J. Henderson, P.S. Crozier, R.L. Rowley and D.D. Busath, "Permeation of Ions Through a Model Biological Channel: Effect of Periodic Boundary Conditions and Cell Size," *Mol. Phys.* **100**, 3011-3019 (2002).

D.J. Henderson, "The Adsorption of Fluids," *Encyclopedia of Surface and Colloid Science,* Dekker, New York, 2002, pp 336-344.

D.T. Wasan, A.D. Nikolov, A. Trokhymchuk and D.J. Henderson, "Confinement Induced Structural Forces in Colloidal Systems," *Encyclopedia of Surface and Colloid Science,* Dekker, New York 2002, pp 1181-1192.

S.B. St. Clair, L.L. St. Clair, D.J. Weber, N.F. Mangelson, and D.L. Eggett, "Element Accumulation patterns in Foliose and Fructicose Lichens from Rock and Bark Substrates in Arizona," *The Bryologist*, **105**(3), 415-421 (2002).

L.D. Hansen, R.S. Criddle, and B.N. Smith, "Thermodynamics and Calorimetry in Biology," *Proceedings of the 30th Annual Conference on Thermal Analysis and Applications*, K.J. Kociba, Ed., September 23-25, 2002, Pittsburgh, Pennsylvania.

J. D. Estes, B. F. Keele, K. Tenner-Racz, P. Racz, M. A. Redd, T. C. Thacker, Y. Jiang, M. J. Lloyd, S. Gartner, and G. F. Burton, "Follicular Dendritic Cell-Mediated Up-Regulation of CXCR4 Expression on CD4 T Cells and HIV Pathogenesis," *Journal of Immunology*, **169**, 2313-2322 (2002).

G. F. Burton, B. F. Keele, J. D. Estes, T. C. Thacker and S. Gartner, "Follicular dendritic cell contributions to HIV pathogenesis," *Seminars in Immunology*, **14**, 275-284 (2002).

B.A. Smith-Franklin, B. F. Keele, J. G. Tew, S. Gartner, A. K. Szakal, J. D. Estes, T. C. Thacker, G. F. Burton, "Follicular Dendritic Calls and the Persistence of HIV Infectivity: The Role of Antibodies and Fc(Receptors," *Journal of Immunology*, **168**, 2408-2414 (2002).

W.W. Shumway, N.K. Dalley, and D.M. Birney, "Reinvestigation of the Reactions of Camphorketene: Structural Evidence for Pseudopericyclic Pathways," *J. Org. Chem.*, **66**, 5832-5839 (2001).

B.N. Smith, T.A. Monaco, C. Jones, R.A. Holmes, L.D. Hansen, E.D. McArthur, D.C. Freeman, "Stress-induced metabolic differences between populations and

subspecies of *Artemisia tridentata* (sagebrush) from a singe hillside," *Thermochimica Acta,* **394**, 205-210 (2002).

T. Thygerson, J.M. Harris, B.N. Smith, L.D. Hansen, R.L. Pendleton, D.T. Booth, "Metabolic response to temperature for six populations of winterfat (*Eurotia lanata*)," *Thermochimica Acta*, **394**, 211-217 (2002).

D.A. Stradling, T. Thygerson, J.A. Walker, B.N. Smith, L.D. Hansen, R.S. Criddle, R.L. Pendleton, "Cryptogamic crust metabolism in response to temperature, water vapor, and liquid water," *Thermochimica* Acta, **394**, 219-225 (2002).

Department of Computer Science

S.W. Liddle, D.W. Embley, D.T. Scott, and S.H. Yau, "Extracting Data Behind Web Forms", *Workshop on Conceptual Modeling Approaches for e-Business: A Web Service Perspective* (eCOMO'2002), Tampere, Finland, 11 Oct. 2002, 38-49.

D.W. Embley, C. Tao, and S.W. Liddle, "Automatically extracting ontologically specified data from HTML tables with unknown structure", *Proceedings of the 21st International Conference on Conceptual Modeling* (ER2002), Tampere, Finland, 7-11 Oct. 2002, 322-327.

I.M.E. Filha, A.S. da Silva, A.H.F. Laender, and D.W. Embley, "Representing and querying semistructured web data using nested tables with structural variants," *Proceedings of the 21st International Conference on Conceptual Modeling* (ER2002), Tampere, Finland, 7-11 Oct. 2002, 135-151.

B. Lloyd and P.K. Egbert, "Horizon Occlusion Culling for Real-time Rendering of Hierarchical Terrains", *IEEE Visualization 2002*, Oct. 2002, 403-409.

Department of Geology

J. N. Aleinikoff, R. P. Wintsch, C. M. Fanning and M. J. Dorais. "U-Pb geochronology of zircon and polygenetic titanite from the Glastonbury Complex, Connecticut, USA: An integrated SEM, EMPA, TIMS, and SHRIMP study." *Chemical Geology*, 188, 125-147 (2002).

M. J. Dorais and C. Shriner. "A comparative electron microprobe study of 'Aeginetan' wares with potential raw material sources from Aegina, Methana, and Poros." *Geoarchaeology,* 17, 555-577 (2002).

L. F. Hintze and F. D. Davis. "Geologic map of the Tule Valley 30' x 60' quadrangle and parts of the Ely, Fish Springs, and Kern Mountains 30' x 60' quadrangles, Northwest Millard County, Utah" *Utah Geological Survey,* Map 186 (2002).

W. E. Miller. "Quartenary vertebrates of the northeastern Bonneville Basin and vicinity of Utah." In Great Salt Lake; an Overview of Change (J. W. Gwynn, ed.) *Utah Geological Survey Special Publication,* 54-69 (2002).

Department of Physics and Astronomy

D. Hullinger, R. Bradford, C. Crawford, R.S. Turley, Brigham Young University, and C. Crawford, Massachusetts Institute of Technology, "Determination by Spectral Analysis of the Electron Temperature of an Electrical Pulse-Generated Plasma", *Journal of the Utah Academy of Arts, Sciences and Letters -1999*, **76**, 108-113 (2002).

D.E. Jones, "Anomalous Currents Associated with Euler Potential and Hybrid Models of Jupiter's Magnetosphere", *Journal of the Utah Academy of Arts, Sciences and Letters - 1999*, **76**, 114-139 (2002).

M.B. Squires, D.D. Allred and R.S. Turley, "The Optical Constants of Sputtered U and a Si at 30.4 and 58.4 nm," *Journal of the Utah Academy of Arts, Sciences and Letters-1999*, **76**, 74-87 (2000).

S. Lunt and R.S. Turley, "The Use of Genetic Algorithms in Multilayer Mirror Optimization," *Journal of the Utah Academy of Arts, Sciences and Letters-1999*, 61-73 (2000).

S. Kim and J.F. Van Huele, Brigham Young University, "On the Measurements of Time in Quantum Mechanics", *Journal of the Utah Academy of Arts, Sciences and Letters -1999*, 76, 88-96 (2002).

E. Rodriguez, V. Costa, M. J. Lopez-Gonzalez, J.M. Garcia, S.L. Kim, J.W. Lee, J.H. Yoon, E. Hintz, D.E. Mkrtichian, A.Y. Gamarova, A.V. Kusakin, "Sct-Type Pulsators in Eclipsing Binary Systems: the Case of RZ Cas." *Publications of the Astronomical Society of the Pacific Conference Series,* 259, 102 (2002).

A. P. Shevelko, Yu. S. Kasyanov, and O. F. Yakushev, L. V. Knight, "Compact Focusing Von Hamos Spectrometer for Quantitative X-ray Spectroscopy", *Review of Scientific Instruments*, **73** (10), Oct. 2002.

Department of Statistics

G. B. Schaalje and J.L. Shaw, "Using Nonlinear Hierarchical Models for Analyzing Annulul-based Size-At-Age Data," *Canadian Journal of Fisheries and Aquatic Sciences* 59: 1524-1532 (2002).

W. F. Christensen and S. R. Sain, "Accounting for Dependence in a Flexible Multivariate Receptor Model," *Technometrics,* 44, 328-337.