



College of Physical and Mathematical Science

Newsletter

January 2003



...College News...

Virtual ChemLab

Dr. Brian F. Woodfield, of the Chemistry and Biochemistry Department, has developed a convenient way for students to experience laboratory life from their computers by using Virtual ChemLab. In December an article was featured in The Chronicle describing and praising Dr. Woodfield's work done on this software. To read the article visit <http://chronicle.com/free/2002/12/2002121001t.htm>.

Mu Sigma Rho Annual Christmas Breakfast

In December, Mu Sigma Rho and the Department of Statistics sponsored the 2nd Annual Christmas breakfast for all student majors. The aroma of sizzling sausages and French toast cooked by the faculty wafted through the halls. Fresh fruit, orange juice and chocolate milk were also served. About 75 students and faculty enjoyed the breakfast. The activity ended with a boisterous white elephant drawing and lots of laughter.

COLLEGE PUBLICATIONS

Department of Chemistry and Biochemistry

M.L. Origlia-Luster, B.A. Patterson, E.M. Woolley, "Apparent molar volumes and apparent molar heat capacities of aqueous ethane-1,2-diol, propane-1,2-diol, and propane-1,3-diol at temperatures from 278.15 K to 393.15 K and at the pressure 0.35 MPa," *J. Chem. Thermodynamics*, **34**, 511-526, (2002).

B.A. Patterson and E.M. Woolley "Thermodynamics of ionization of water at temperatures $278.15 \leq T / \text{K} \leq 393.15$ K and at the pressure $p = 0.35$ MPa: apparent molar volumes and apparent molar heat capacities of aqueous solutions of potassium and sodium nitrates and nitric acid," *J. Chem. Thermodynamics*, **34**, 535-556, (2002).



J.J. Jardine, B.A. Patterson, M.L. Origlia-Luster, and E.M. Woolley “Thermodynamics for proton dissociation from aqueous imidazolium ion at temperatures from 278.15 K to 393.15 K and at the pressure 0.35 MPa: apparent molar volumes and apparent molar heat capacities of the protonated and neutral imidazole,” *J. Chem. Thermodynamics*, **34**(6) 895-913, (2002).

W.B. Clayton, B.A. Patterson, J.J. Jardine, and E.M. Woolley “Apparent molar volumes and apparent molar heat capacities of aqueous silver nitrate at molalities from $0.015 \text{ mol} \cdot \text{kg}^{-1}$ to $0.5 \text{ mol} \cdot \text{kg}^{-1}$, at temperatures from 278.15 K to 393.15 K, and at the pressure 0.35 MPa,” *J. Chem. Thermodynamics*, **34**(10) 1531-1543, (2002).

M.L. Origlia-Luster, B.A. Patterson, and E.M. Woolley “Thermodynamics for Self-Association of Caffeine in Water: Apparent Molar Volumes and Apparent Molar Heat Capacities of Aqueous Caffeine at Temperatures from 278.15 K to 393.15 K and at the Pressure 0.35 MPa,” *J. Chem. Thermodynamics*, **34**(11) 1905-1917, (2002).

S.B. St. Clair, L.L. St. Clair, N.F. Mangelson, and D.J. Weber, “Influence of Growth Form on the Accumulation of Airborne Copper by Lichens,” *Atmospheric Environment*, **36**, 5637-5644 (2002).

W. Ware, Jr., D.S. Soane, D.B. Millward, and M.R. Linford, “Dye Fixatives,” United States Patent 6,497,733, (December 24, 2002).

D.S. Soane, M.R. Linford, R. Lau, and E. Green, “Fiber-reactive Polymeric Dyes,” United States Patent 6,497,732, (December 24, 2002).

Department of Computer Science

E. Istook, and T. R. Martinez, “Improved Backpropagation Learning in Neural Networks



with Windowed Momentum”, *International Journal of Neural Systems*, **12** (3&4) 303-318, (2002).

B. Moring, and T. R. Martinez, “Weighted Instance Typicality Search (WITS): A Nearest Neighbor Data Reduction Algorithm,” to appear in *Intelligent Data Analysis*, (2003).

Department of Geology

D.C. Bain and D.T. Griffen, “Possible Effects of Land Use on the Clay Mineralogy of a Brown Forest Soil,” *Clay Mineralogy*, **37**, 663-670, (2002).

Department of Mathematics

W. Han, K.L. Kuttler, M. Shillor, M. Sofonea “Elastic beam in adhesive contact,” *International Journal of Solids and Structures*, **39**, 1145-1164, (2002).

David A. Cardon and Xian-Jin Li “A Dirichlet Series Related to Eigenvalues of the Laplacian for Congruence Subgroups,” *Number Theory for the Millennium I*, 153-181, (2002).

K. T. Andrews, K. L. Kuttler, M. Rochdi and M. Shillor “One-Dimensional Dynamic Thermoviscoelastic Contact with Damage,” *J. of Math. Anal. Appl.* **272**, 249-275, (2002).

K. L. Kuttler and Meir Shillor “Dynamic Contact with Normal Compliance Wear and Discontinuous Friction Coefficient,” *SIAM Journal of Math. Analysis*, **34**, 1-27, (2002).

E.L. Swenson “Convergence groups from subgroups,” *Geometry and Topology*, **6**, 649-655, (2002).

D. Doud “Three-dimensional Galois Representations with Conjectural Connections to Arithmetic Cohomology,” *Number Theory for the Millennium, Proceedings of the*



Millennial Conference on Number Theory, 365-376, (2002).

D.A. Cardon and P.P. Nielsen "Convolution Operators and Entire Functions with Simple Zeros," *Number Theory for the Millennium I*, 183-196, (2002).

J.W. Cannon and W. Dicks "On Hyperbolic Once-Punctured-Torus Bundles," *Geometriae Dedicata*, **94** 141-183, (2002).

T.J. Jarvis and T. Kimura "Orbifold quantum cohomology of the classifying space of a finite group," *Contemporary Mathematics*, **310** 123-134, (2002).

Department of Physics and Astronomy

T. Wen, G.C. Ma, X.X. Dai, J.X. Dai, and W.E. Evenson, "Phonon spectrum of YBCO obtained by specific heat inversion method for real data," *Journal of Physics: Condensed Matter*, **15**, 225-238 (2003).

G.X. Hu, J.P. Ye, X.X. Dai, and W.E. Evenson, "Quantitative and Qualitative Analysis of Bose-Einstein Condensation in Harmonic Traps," *Communications in Theoretical Physics* (Beijing, China) **39**, 49-53, (2003).

T.D. Grow, S. Plamondon, W.E. Evenson, and G.S. Collins, "Stochastic Model of PAC Nuclear Relaxation Caused by Defects Hopping on a Simple Cubic Lattice," *Hyperfine Interactions*, **136/137**, 627-632, (2001 appeared November 2002).

M.A. Alves, N. Mommer, J.A. Gardner, and W.E. Evenson, "Simulated Quadrupolar Broadening in Condensed Matter PAC Spectroscopy," *Hyperfine Interactions*, **136/137**, 573-577, (2001 appeared November 2002).

W.E. Evenson, H. Jaeger and M.O. Zacate, eds *Proceedings of the 12th International Conference on Hyperfine Interactions, Hyperfine Interactions*, **136/137**, 1-4, (2001 appeared November 2002).

D.D. Allred, M.B. Sauires, R.S. Turley, W. Cash, and A. Shipley, "Highly Reflective Uranium Mirrors for Astrophysics Applications", in X-ray Mirrors, Crystals and Multilayers, Andreas K. Freund, Albert T. Macrander, Tetsuya Ishibkawa, and James T. Wood, Editors, *Proc. SPIE 4782*, 212-223, SPIE, Bellingham, WA, (2002).

D. Dormio and S.E. Jones, "Evaluation of Several Original and Commonly Used Solar Cooker Designs", *The Solar Cooking Archive*, (December 2002). Also available on-line at <http://solarcooking.org/researchdormio-report.htm>

S.E. Jones, "The Project Gutenberg EBook of The BYU Solar Cooker/Cooler", published at <http://www.gutenberg.config.com/etext04/cookr10.txt>, (September 2002).

Department of Statistics

G. B. Schaalje, J. B. McBride, and G. W. Fellingham, "Adequacy of Approximations to Distributions of Test Statistics in Complex Mixed Linear Models," *American Statistical Association and the International Biometric Society Journal of Agricultural, Biological, and Environmental Statistics*, **4**, 512-524, (2002).

J. Lawson, D. White, B. Price, and R. Yamagata "Probabilistic Record Linkage Genealogical Research," *BYU Studies*, **41**, 161-174, (2002).



**A Happy
New
Year!**

