

**Life Sciences Division  
2001 Presentations**

- Alarie, J. P., S. C. Jacobson, B. S. Broyles, T. E. McKnight, C. T. Culbertson, and J. M. Ramsey, "Electrosmotically Induced Hydraulic Pumping on Microchips, presented at MicroTAS 2001, Monterey, California, October 21–25, 2001.
- Allain, L. and T. Vo-Dinh, "Lifetime fluorescence measurements of vapor phase PAH mixtures at high temperatures," presented at the 18th International Symposium on Polycyclic Aromatic Compounds, Cincinnati, Ohio, September 9–13, 2001.
- Allain, L. and T. Vo-Dinh, "Rapid *In-Situ* Detection of PAHs at Elevated Temperatures using Laser-Induced Fluorescence Fiber-Optic Sensors," presented at the 18th International Symposium on Polycyclic Aromatic Compounds, Cincinnati, Ohio, September 9–13, 2001.
- Allain, L. R. and T. Vo-Dinh, "Microarray fabrication of biological samples using bubble-jet and ink-jet technologies," presented at the Pittsburgh Conference – 2001, New Orleans, Louisiana, March 4–9, 2001.
- Baker, E. J., B. L. Jackson, G.-L. Chen, D. D. Schmoyer, and J. R. Snoddy, "TMGC:Mutrack, A Collaborative Database for Phenotype Screening in the Tennessee Mouse Genome Consortium," presented at Genome Sequencing and Biology, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, May 9–13, 2001.
- Baker, E., M. L. Land, P. D. Hyatt, S. Kirov, P. F. LoCascio, B. L. Jackson, D. D. Schmoyer, M. B. Shah, and J. R. Snoddy, "Large-Scale Mammalian Phenotype and Genotype Analysis: Towards Integrated Computational and Experimental Research," presented at Genome Sequencing & Biology, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, May 9–13, 2001. (Invited)
- Barton, J. W. and R. D. Spence, "Application of MVST Stabilization Process to Enhance Leach Resistance in Actual Radioactive Sludges," presented at the 13th Annual Technical Information Exchange Workshop, Albuquerque, New Mexico, November 13, 2001.
- Barton, J. W. and R. D. Spence, "Stabilization and Solidification of Oak Ridge Tank Sludges," presented at the 2001 Annual American Concrete Institute Conference, Dallas, Texas, November 1, 2001.
- Barton, J. W., C. D. Vodraska, and B. H. Davison, "Effect of Biomass on the Measured Solubility of Priority Contaminants in Aqueous Bioremediation Systems," presented at the American Institute of Chemical Engineers Annual Conference, Reno, Nevada, November 4–11, 2001.
- Brown, G. M. D. J. Wesolowski, P. Benezeith, P. V. Bonnesen, L. J. Foote, S. Hilic, B. A. Moyer, D. A. Palmer, and G. J. Lumetta, "Liquid-Liquid Extraction of NaOH for Caustic Recycle in Augmented Sludge Washing," presented at the DOE Environmental Management Science Program and Tanks Focus Area Workshop for Newly Awarded EMSP High-Level Waste Projects, Richland, Washington, November 7–9, 2001. (Invited)

- Brown, G. M., P. V. Bonnesen, P. F. Britt, R. Dabestani, T. G. Thundat, D. R. Walt, and S. A. Bryan, "Optical and Microcantilever-Based Sensors for Real-Time *In Situ* Characterization of High-level Waste," presented at the DOE Environmental Management Science Program and Tanks Focus Area Workshop for Newly Awarded EMSP High-Level Waste Projects, Richland, Washington, November 7–9, 2001.
- Brown, K. K., M. C. Franklin, J. G. Binz, B. R. Kenke, D. A. Winegar, S. Taj, R. Bahirwani, E. J. Michaud, B. H. Jones, A. L. Beets, and F. F. Knapp, "PPAR Activator G1251929 Alters Glucose and Lipid Uptake and Metabolism: Cardiac Gene Expression and Tracer Studies with [I-125]-BMIPP and [F-18]-2-FDG," presented at Regulation of Energy Metabolism in the Heart and Vasculature, Banff, Canada, July 2–5, 2001.
- Brown, K., E. Guenther, B. E. Hingerty, S. Broyde, K. Turteltaub, and M. Cosman, "Solution Structure of the 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP)-C8-dG Adduct Opposite dC in a DNA Duplex," presented at the Fourth International Conference on Molecular Structural Biology ICMSB 2001, Vienna, Austria, September 5–9, 2001. (Poster)
- Brown, K., E. Guenther, B. E. Hingerty, S. Broyde, K. Turteltaub, and M. Cosman, "Solution Structure of the 2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP)-C8-dG Adduct Opposite dC in a DNA Duplex," presented at the American Association for Cancer Research, New Orleans, Louisiana, March 24–28, 2001. (Poster)
- Bunick, G. J., J. M. Harp, and B. L. Hanson, "Macromolecular Crystal Annealing: Fact and Fiction, presented at the Annual CHESS Users' Meeting, Cornell University, Ithaca, New York, June 12–13, 2001. (Invited)
- Culbertson, C. T., J. P. Alarie, M. A. McClain, S. C. Jacobson, and J. M. Ramsey, "Rapid Cellular Assays on Microfabricated Fluidic Devices," presented at MicroTAS 2001, Monterey, California, October 21–25, 2001.
- Culiat, C. T., J. Millsaps, J. Desai, B. Stanford, L. Hughes, M. Kerley, D. Carpenter, and E. M. Rinchik, "*Nell1*: a candidate gene for ENU-induced recessive lethal mutations at the *17R6* locus, presented at the 15th International Mouse Genome Conference, International Mouse Genome Society, Edinburgh, Scotland, October 21–24, 2001.
- Culiat, C. T., Z. Liu, D. K. Johnson, and E. M. Rinchik, "High-throughput Mutation Scanning in the Mouse Genome Using Temperature-Gradient Capillary Electrophoresis," presented at the Workshop on Identification of Genes Underlying ENU-Induced Mutant Phenotypes, McLaughlin Research Institute, Great Falls, Montana, July 13–15, 2001.
- Davison, B. H., J. W. Barton, K. T. Klasson, and L. O'Connor, "Removal and Destruction of CWA Simulants Using 'Dry' Enzyme Impregnated Fabrics and Coatings," presented at ENZYME: International Symposium on Applications of Enzymes in Chemical and Biological Defense, Orlando, Florida, May 13–18, 2001.
- Davison, B. H., T. Kuritz, C. K. McKeown, and J. W. Barton, "Green Biopolymers for Decontamination of Metals from Surfaces," presented at the 2001 Annual American Institute of Chemical Engineers, Reno, Nevada, November 8, 2001.

- Dehal, P., A. Olsen, L. Gordon, J. Kim, A. Kobayashi, S. Lucas, M. Wagner, C. Zhou, E. C. Uberbacher, M. L. Land, T. Hawkins, E. Branscomb, P. Predki, and L. Stubbs, “Comparative Analysis of the Sequence of Human Chromosome 19 and Related Mouse Regions,” presented at Genome Sequencing & Biology, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, May 9–13, 2001. (Invited)
- Delmau, L. H., Bonnesen, P. V., J. C. Bryan, T. J. Haverlock, T. J. Lefranc, G. F. Van Berkel, S. Mirzadeh, and B. A. Moyer, “Extraction of Alkali Metals by a Calix[4]arene Biscrown-6 Ether: When Modifiers Meet Modeling. . .,” presented at the BES Workshop, San Diego, California, April 5–7, 2001. (Invited)
- Dhar, M. S., C. Sullivan, N. M. Moustaid, and D. K. Johnson, “A Putative Murine Aminophospholipid Translocase Maps to a Quantitative Trait Locus Influencing Body Fat in Mouse Chromosome 7, presented at the 15th International Mouse Genome Conference, International Mouse Genome Society Edinburgh, Scotland, October 21–24, 2001. (Invited)
- Doktycz, M. J., “Applications of Picoliter and Nanoliter Fluid Handling and Arraying,” presented at Photonics West, San Jose, California, January 19–25, 2001.
- Doktycz, M. J., “Nanoliter Fluid Handling and Arraying,” presented at the Spring American Chemical Society Symposium for Advanced Materials & Nanotechnology, San Diego, California, April 1–5, 2001. (Invited)
- Doktycz, M. J., L. M. Lenn, P. F. Britt, M. A. Guillom, A. V. Melechko, V. I. Merkulov, T. E. McKnight, D. H. Lowndes, and M. L. Simpson, “Nanofiber Structures for Molecular Assembly and Controlled Transport,” presented at The Second Georgia Tech Conference on Nanoscience and Nanotechnology, Georgia Tech, Atlanta, Georgia, September 19–21, 2001.
- Doktycz, M. J., L. Zhang, L. M. Lenn, P. F. Brigg, M. A. Guillom, A. V. Melecko, V. I. Merkulov, T. E. McKnight, D. H. Lowndes, M. L. Simpson, “Nanofiber Structures for Molecular Assembly and Controlled Transport,” presented at the Second Annual BioMEMS & Biomedical Nanotechnology World 2001, Columbus, Ohio, September 22–25, 2001.
- Hanson, B. L., J. M. Harp, K. Kirschbaum, D. A. Parrish, A. Howard, A. A. Pinkerton, and G. J. Bunick, “The Use of Cryogenic Helium in Macromolecular Crystallography,” presented at the Annual CHESS Users’ Meeting, Cornell University, Ithaca, New York, June 12–13, 2001. (Invited)
- Hingerty, B. E., S. Broyde, Z. Gu, A. Gorin, B. Mao, and D. J. Patel, “Computational Approaches to Carcinogen-DNA Structure Determination,” presented at the UT-ORNL Graduate School of Genome Science and Technology Retreat, Knoxville, Tennessee, May 2, 2001. (Poster)
- Hyatt, P. D., L. J. Hauser, J. Snoddy, M. L. Land, M. B. Shah, D. D. Schmoyer, G.-L. Chen, I. E. Vokler, P. F. LoCascio, V. Olman, and E. C. Uberbacher, “Multiple Gene Finders and their Contribution to our Understanding of the Human Genome,” presented at Genome Sequencing & Biology, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, May 9–13, 2001. (Invited)

- Jacobson, S. C., C. T. Culbertson, M. A. McClain, B. S. Broyles, J. P. Alarie, and J. M. Ramsey, "Lab-on-a-Chip Devices for Obtaining Chemical Information," presented at FACSS 2001, Detroit, Michigan, October 7–12, 2001. (Invited)
- Jacobson, S. C., C. T. Culbertson, M. A. McClain, J. P. Alarie, and J. M. Ramsey, "Lab-on-a-Chip Devices for Performing Chemical Assays," presented at the Eastern Analytical Symposium, Atlantic City, New Jersey, October 1–5, 2001. (Invited)
- Jacobson, S. C., J. P. Alarie, and J. M. Ramsey, "Electrokinetic Transport Through Nanometer Deep Channels," presented at MicroTAS 2001, Monterey, California, October 21–25, 2001. (Invited)
- Jacobson, S. C., T. E. McKnight, B. S. Broyles, J. P. Alarie, C. T. Culbertson, and J. M. Ramsey, "Electrokinetic Fluid Manipulations in Microfabricated Channels," presented at the International Symposium on High Performance Liquid Phase Separations and Related Techniques, Society for Chromatographic Sciences, Kyoto, Japan, September 11–14, 2001. (Invited)
- Klasson, K. T. and B. H. Davison, "A General Methodology for Evaluation of Carbon Dioxide Separation and Sequestration Activities, presented at Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 15–18, 2001.
- Klasson, K. T., C. Tsouris, S. A. Jones, M. Dinsmore, D. W. DePaoli, S. M. Robinson, A. B. Walker, S. Yiacoumi, V. Vithayaveroj, and R. M. Counce, "Ozonation of Produced Water from Oil Production Wells," presented at Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 15–18, 2001.
- Klasson, K. T., P. A. Taylor, S. M. Robinson, S. A. Jones, L. Perkins, and R. M. Counce, "Downhole Separation of Oil and Water in Oil Wells," presented at Separation Science and Technology for Energy Applications, Gatlinburg, Tennessee, October 15–18, 2001. (Poster)
- Klebig, M. L., S. Tandan, Z. Liu, Q. Li, D. K. Johnson, E. M. Rinchik, and C. T. Culiati, "Molecular Detection of ENU-Induced Mutations at the *FAH* and *Ldhl1* Loci in *MMU7* by Heteroduplex Analysis (TMHA and TGCE) and DNA Sequencing," presented at the Workshop on Identification of Genes Underlying ENU-Induced Mutant Phenotypes, McLaughlin Research Institute, Great Falls, Montana, July 13–15, 2001.
- Knapp, F. F., A. L. Beets, E. J. Michaud, B. H. Jones, H. J. Verbene, G. Sloof, K. K. Brown, and B. R. Henke, "Treatment of Diabetic db/db Mice with the new Insulin-Sensitizing Drug GW1929 Results in Alterations in Glucose Handling and Lipid Metabolism-Studies with [I-125] DMIPP and [F-18]-2-FDG, presented at the European Nuclear Medicine Congress, Naples, Italy, August 24–28, 2001.
- Kropp, J., U. Koeckeritz, G. Wunderlick, A. Schmeisser, F. F. Knapp, and W.-G. Franke, "The Dresden in-Stent Restenosis Radiation Trial (DIRRT): Prevention of in-Stent Restenosis with Liquid-filled 188-Re Balloon," presented at the Society of Nuclear Medicine, Toronto, Canada, June 23–27, 2001.

- Meeks, J., M. Potts, J. Elhai, T. Thiel, F. Larimer, P. Predki, and R. Atlas, "The Nostoc Punctiforme Genome: Preliminary Analyses of a Synbiotic, Nitrogen-Fixing and Developmentally Complex Cyanobacterium," presented at ASM & TIGR Conference on Microbial Genomics, Monterey, California, January 28–31, 2001.
- Michaud, E. J. and E. M. Rinchik, "Gene-Driven ENU Mutagenesis with the Oak Ridge Cryopreserved Mutant Mouse Bank (CMMB)," presented at the Workshop on Identification of Genes Underlying ENU-Induced Mutant Phenotypes, McLaughlin Research Institute, Great Falls, Montana, July 13–15, 2001.
- Miller, D. R. "Regional Recessive Mutagenesis Screens for CNS Mutations: A 1st Year Report," presented at the 15th International Mouse Genome Conference, Edinburgh, Scotland, October 21–24, 2001.
- Miller, D. R., "Progress in Phenotyping ENU-Mutagenized Mice from the Tennessee Mouse Genome Consortium for Abnormalities of Behavior and the Nervous System," presented at Mouse Initiatives III, Bar Harbour, Maine, August 1–4, 2001.
- Miller, J. C., "Lasers in Art Conservation," presented at the Symposium on Lasers for Materials Modification, Thomas Jefferson National Laboratory, Newport News, Virginia, January 18–19, 2001. (Invited)
- Mitra, K. and T. Vo-Dinh, "Use of Short Pulse Laser for Optical Topography of Tissues," SPIE Conference on Biomedical Diagnostics Systems, San Jose, California, January 22, 2001. (Invited)
- Mobley, J., A. M. Mathur, and T. Vo-Dinh, "Anisotropy of the ultrasonic scattering and transmission of mammalian white matter in the detection of brain injury," presented at Biomedical Diagnostic, Guidance & Surgical Assistant Systems, San Jose, California, January 12–16, 2001.
- Moscovitch, M, G. W. Phillips, B. M. Cullum, J. Mobley, J. S. Bogard, D. Emfietzoglou, and T. Vo-Dinh, "Radiation Dosimetry Using Three-Dimensional Optical Random Access Memories," presented at the 13th Annual Conference on Solid State Dosimetry, Athens, Greece, July 9–13, 2001. (Invited)
- Moscovitch, M, G. W. Phillips, B. M. Cullum, J. Mobley, J. S. Bogard, D. Emfietzoglou, and T. Vo-Dinh, "The Application of Optical Memory Materials to Radiation Dosimetry," presented at the 13th International Conference on Solid State Dosimetry, July 9–13, 2001. (Invited)
- Pinnaduwege, L. A., P. F. Britt, J. E. Hawk, D. L. Hedden, R. H. Ilgner, G. Muralidharan, M. E. Sigman, T. Skeen, T. G. Thundat, A. Wig, and E. J. House, "Explosive Vapor Detection Using Microcantilever Sensors, presented at the Third International Aviation Security Technology Symposium, Federal Aviation Administration, Atlantic City, New Jersey, November 27–30, 2001. (Invited)
- Predki, P. S. Stilwagen, F. Larimer, K. Frankel, S. Lucas, D. Rokhsar, E. Branscomb, and T. Hawkins, "Assessing Quality and Utility of Microbial Draft Genome Sequence," presented at

ASM & TIGR Conference on Microbial Genomes, Monterey, California, January 28–31, 2001.

Rawl, R. R., K. F. Eckerman, J. S. Hughes, and L. Gologna, “Type A Package Limits of Spontaneous Fission Radionuclides,” presented at the 13th International Symposium on Packaging and Transportation of Radioactive Materials, Chicago, Illinois, September 2–7, 2001.

Rinchik, E. M., D. A. Carpenter, D. K. Johnson, Y. You, and E. J. Michaud, “Pros and Cons of Chromosomal Deletions as Tools for Mutation Recovery, Fine-Structure Mutation Mapping, and Candidate-Gene Identification in the Mouse,” presented at the Workshop on Identification of Genes Underlying ENU-Induced Mutant Phenotypes, McLaughlin Research Institute, Great Falls, Montana, July 13–15, 2001. (Invited)

Rocap, G., S. Stilwagen, J. Lamerdin, S. Chisholm, and F. Larimer, “Comparative Genomics of Marine Cyanobacterium *Prochlorococcus*: From Base Pairs to Niche Differentiation,” presented at ASM & TIGR Conference on Microbial Genomes, Monterey, California, January 28–31, 2001.

Shah, M. B., I. E. Vokler, P. D. Lyatt, M. L. Land, F. W. Larimer, P. F. LoCascio, G.-L. Chen, V. N. Olman, J. R. Snoddy, and E. C. Uberbacher, “Genome Analysis Toolkit and Server,” presented at Genome Sequencing and Biology, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, May 9–13, 2001.

Slezak, T., L. Ott, P. McCready, P. Predki, and F. W. Larimer, “Leveraging the DOE's High-Throughput Microbial Sequencing, Analysis, and Signature-Development Capabilities,” presented at the Agricultural Microbes Genome 2 Meeting, Technology and Bioinformatics, San Diego, California, January 18–19, 2001. (Invited)

Stokes, D. L., B. M. Cullum, J. Mobley, and T. Vo-Dinh, “SERS Detection of Chemicals Using an AOTF-based Detection System,” presented at the Pittsburgh Conference - 2001, New Orleans, Louisiana, March 4–9, 2001.

Stokes, D. L., G. D. Griffin, M. Askari, and T. Vo-Dinh, “A Biochip with a Microfluidic Delivery System for the Detection of Pathogens,” presented at the Pittsburgh Conference - 2001, New Orleans, Louisiana, March 4–9, 2001. (Invited)

Stratis, D. N., G. D. Griffin, D. L. Stokes, L. R. Allain, J. Mobley, and T. Vo-Dinh, “Detection of *Bacillus Glogigii* Spores using a Biochip system with miniature diode laser excitation,” presented at Pittcon, New Orleans, Louisiana, March 17–22, 2001.

Ting, C., G. Rocap, S. Stilwagen, J. Lamerdin, J. King, S. Chisholm, and F. Larimer, “Comparative Analysis of Photosynthetic Apparatus Genes in Cyanobacterial Genomes: Evidence for Gene Loss and Genome Economization,” presented at ASM & TIGR Conference on Microbial Genomes, Monterey, California, January 28–31, 2001.

Vass, A. A., S. A. Barshick, G. Sega, J. Caton, J. T. Skeen, J. C. Love, J. A. Synsteliën, “Decomposition Chemistry of Human Remains: A New Methodology for Determining the

- Postmortem Interval,” presented at the American Academy of Forensic Sciences 54th Annual Meeting, Atlanta, Georgia, February 11–16, 2001. (Poster)
- Verberne, H. J., G. W. Sloof, A. L. Beets, R. L. Silverstein, A. M. Murphy, and F. F. Knapp, Jr., “Decreased 2-FDG Uptake in a Troponin I transgenic Mouse Model of Stunned Myocardium in the Presence of Normal Flow and Normal Fatty Acid Uptake,” presented at the 5th International Conference of Nuclear Cardiology, Vienna, Austria, May 2–5, 2001.
- Vo-Dinh, T., “A Multi-Functional Biochip for Medical Diagnostics and Pharmacogenics Research,” presented at Genomics & New Therapeutics: New Avenues in Atherosclerosis Research, Montreal, Canada, March 14–16 2001. (Invited)
- Vo-Dinh, T., “Antibody-Based Nanoprobe for Single-Cell Measurements,” presented at Advances in Assays, Molecular Labels, Signaling & Detection, Washington, D.C., May 17–18, 2001. (Invited)
- Vo-Dinh, T., “Hetero-Function Biochip Platform for Applications in Proteomics and Genomics,” presented at Biochips 2001: Technology Development & Application, The Knowledge Foundation & Polytechnic University, Brooklyn, New York, March 12–13, 2001. (Invited)
- Vo-Dinh, T., B. M. Cullum, and G. D. Griffin, “Optical Nanosensor for Single-Cell Analysis,” presented at Applications to Signaling, Structure and Function, Bethesda, Maryland, March 13–14, 2001. (Invited)
- Vo-Dinh, T., M. Askari, and D. L. Stokes, “Development of a Biochip for Medical Diagnosis,” presented at the European Biomedical Conference, Munich, Germany, June 18–21, 2001. (Invited)
- Vo-Dinh, T., M. Panjehpour, B. F. Overholt, C. Julius, S. Overholt, and M. Phan, “Laser-Induced Fluorescence (LIF) for the Detection of Esophageal and Skin Cancer,” presented at the European Biomedical Conference, Munich, Germany, June 18–21, 2001. (Invited)
- Ward, R. D., K. L. Kruse, L. M. Allgood, L. M. Hively, K. N. Fischer, N. B. Munro, and C. E. Easterly, “Virtual Human Project,” presented at AeroSense 2001 Meeting, Orlando, Florida, April 16–20, 2001.
- Wells, J. C., K. A. Stevenson, G. Muralidharan, T. G. Thundat, L. Maya, and J. Barhen, “Programmed Assembly of Quantum-Dot Arrays on DNA Templates: Hardware for Quantum Computing?,” presented at the Eight International Conference on Quantum Information, Rochester, New York, June 10–13, 2001.
- Wheaton, J. H., R. R. Henning, D. J. O’Connor, C. C. Tsai, C. C. Hsu, R. J. Raridon, I. Sauers, W. P. Partridge, and L. L. Huey, “Rotating Arc Spark Plug Concept,” presented at the 2001 Fall Fuels and Lubricants Conference, San Antonio, Texas, September 24–27, 2001. (Invited)
- Wullschleger, S. D., M. Z. Martin, T. Vo-Dinh, G. D. Griffin, D. L. Stokes, and A. L. Wintenberg, “Advanced Instrumentation for *In Situ* Field Monitoring of Soil Carbon

Sequestration,” presented at the First National Conference on Carbon Sequestration, Washington, D.C., May 14–16, 2001.

Xu, Y., D. Xu, and O.H. Crawford, “Combining Partial NMR Data and Protein Threading for Protein Structure Prediction,” presented at the Sixth Johns Hopkins Folding Meeting, Johns Hopkins University, Berkeley Springs, West Virginia, March 17–20, 2001. (Poster)

Xu, Y., V. Olman, and D. Xu, “Minimum Spanning Trees for Gene Expression Data Clustering,” presented at Genome Informatics 2001 (Genome Informatics 12), Tokyo, Japan, December 17–19, 2001.

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