

**2011 Annual Joint Meeting of the
Montana Academy of Sciences and
Montana Local Section of the
American Chemical Society
Program
Friday April 15, 2011**

4- 5:30 pm: MAS Board of Directors Meeting (Digger Den, Downstairs Student Union)

5:30-10 pm: MAS Annual Meeting: Registration, Reception, Poster Session, Dinner, Award Presentation (Digger Den, Downstairs Student Union).

5:30- 7 pm: Registration and put up posters

6-7 pm: Poster Session & Reception

- Refreshments sponsored by Dr. Frank Gilmore, Chancellor of Montana Tech and Rick Douglass, Chair, Department of Biological Sciences.

7-8 pm: Buffet Dinner

- Dinner is sponsored by Dr. Rich Bridges and The Department of Biomedical and Pharmaceutical Sciences at The University of Montana.

8 pm: MAS Awards Presentation (Presenter: Jim Barron, President, MAS)

8:15 – 9:30ish pm: Poster Session (continued)

Saturday April 16, 2011

7:30- 8:30 am: Continental Breakfast & ACS Registration (Library Atrium)

- Breakfast is sponsored by The College of Letters, Sciences and Professional Studies (Dean Doug Coe) at Montana Tech, Butte MT.

8:30 am- 12:00 pm: Platform Session and Keynote (MAS and ACS sections combined) Library Auditorium

8:30 – 8:45: **Mutant bacteriophages capable of infecting resistant hosts.**

Tyler J. Hilton, Robert J. Lester¹, Marisa L. Pedulla; Montana Tech of the University of Montana; ¹East Middle School, Butte Mt.

8:45 – 9:00: **Effectiveness of flow management and Rainbow Trout harvest on long- term viability of native Yellowstone Cutthroat Trout in the South Fork Snake River.**

, Laurie Battle¹, Robert W. Van Kirk², William C. Schrader³, ¹Montana Tech, Dept. of Mathematical Sciences, Butte, MT; ²Department of Mathematics, Idaho State University, Pocatello, ID; ³Idaho Dept. of Fish and Game, Nampa, ID.

9:00 – 9:15: **The effects of caffeine on precision target shooting.** Mackenzie Enich, Big Sky High School, Missoula, MT.

9:15 – 9:30: **Investigating the use of *Ustilago bullata* as a biological control agent for *Bromus tectorum*: Is genetic variation present within various *Ustilago bullata* populations on MPG Ranch?** Stacia Hill, Big Sky High School, Missoula, MT.

9:30 – 9:45: **Is there a difference in academic performance between American males and females.** Amy Galipeau, Sentinel High School, Missoula, MT.

9:45 – 10:00: **Evaluation of density functionals using valence and core excited spectra of $[Ni(SR)_4]^x$.** Matt Queen, Kevin Murray, Harlan Byker, Robert Szilagyi. Montana State University, Bozeman, MT.

10:00 – 10:15: **An improved synthesis of sterically hindered aromatic Isoxazoles.** Joseph Mirzaei, Matheaw J. Weaver, Scott Steiger, Lilly Matti, Nick Natale. The University of Montana, Missoula, MT.

10:00-12:00: Breakout Session I (ELC 202) – Jr. Academy

10:15 – 10:30: **Effect of residual feed intake on temporal patterns of glucose, insulin, and NEFA concentrations after a glucose challenge in Targhee ewes.** J.G. Berardinelli¹; R.R. Redden². R.B. McCosh¹, R.W. Kott¹.

¹Dept. of Animal and Range Sciences, Montana State University, Bozeman, MT.

²North Dakota State University, Fargo, ND.

10:30 – 10:45: **Oxygen-atom reactivity with polyimide and POSS-polyimide**

surfaces. Brooks Marshall, Sara A Marquez¹, Amy L Brunsvold, Russel Cooper¹, Linhan Shen¹, Timothy K Minton¹, Sandra J Tomczak², Michael E Wright⁴, Andrew J Guenther⁴, Brian J. Pettys⁴, Vandra Vij³, Laura M McGrath³, Joseph M Mabry². ¹Montana State University; ²Air Force Research Laboratory, AFRL/RZSM; ³Air Force Research Laboratory, ERC Incorporated; ⁴Chemistry Division NAVAIR-US NAVY, Research and Engineering Sciences Department.

10:45 – 11:00: **The joint toxicity of three pyrethroid insecticides to**

Drosophila melanogaster. Jerome J. Schleier III, Collin Preftokis, and Robert K.D. Peterson. Dept. of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT.

11:00 – 11:15: **Protein Cage Nanoparticles and Associated Protection**

Against Respiratory Viruses. Amy Servid, James Wiley, Ben Johnson, Agnieszka Rynda, Mark Young, Allen Harmsen, Trevor Douglas. Montana State University, Bozeman, MT.

11:15 – 12:00: **Keynote Speaker – Dr. Bradley Layton**

“Molecules, Bearers of Information, Carriers of Entropy: How Nanotech and Greentech need to Start Talking”

12:00- 1:00 pm Deli Lunch (Library Auditorium Foyer)

Lunch is sponsored by Dean Tasneem Khaleel and the College of Arts and Sciences, Montana State University – Billings.

Breakout Sessions in Library Auditorium (I - MAS) and in ELC 202 (II – ACS) and in ELC 203 (III – ACS)

1:00- 3:00 pm Breakout Session II (Library Auditorium- MAS)

1:00 – 1:15: **Developing novel proteomic approaches to identify the targets of Grr1p and Cdc4p in Candida albicans.** Daniel Willems, Joy Goeffena, David Butler and Kurt Toenjes. Montana State University Billings, Billings, MT.

1:15 – 1:30: **An elementary theory for the categories of graphs.** Demitri Plessas. Dept. of Mathematical Sciences. The University of Montana, Missoula, MT.

- 1:30 – 1:45: **Composing affine optimization problems.** Tien Chih. Dept. of Mathematical Sciences. The University of Montana, Missoula, MT.
- 1:45 – 2:00: **Preparation of an atlas of the ovine hypothalamus for colocalization of key signaling peptides in reproduction.** Richard B. McCosh, Carson Butler, Nicole Cloutier, Rodney W. Kott, and J.G. Berardinelli. Montana State University, Bozeman, MT.
- 2:00 – 2:15: **Commercially made fish feeds could potentially be exposing VHSV to P. Herring and causing different growth in the pacific herring.** Josh Beaulaurier¹, Paul Hershberger², Nate Bickford¹, Jake Gregg², Courtney Grady², and Rachael Collin². ¹University of Great Falls, Great Falls, MT., ²United States Geological Survey: Marrowstone Marine Field Station, Nordland, WA.
- 2:15 – 2:30: **Bird diversity among land use.** Jenni S. Hill¹, Nate Bickford¹, Jason Gibbons². ¹The University of Great Falls, Great Falls, MT. ²Malmstrom Air Force Base, Great Falls, MT.
- 2:30 – 2:45: **Water quality analysis of heavy metals As, Cd, Cu, Pb, and Hg from Etang Saumatre lake in Haiti.** Josi Herron¹, Alan D. Christian², and Robyn Hannigan². ¹University of Great Falls, Great Falls, MT., ²University of Massachusetts Boston, Boston, MA.
- 2:45 – 3:00: **Identification of potential targets of the GRR1 Ubiquitin Ligase in Candida Albicans.** Cameron Fox¹, Jon Laurent², Ron Hull¹, Ryan Merrill-Johnson¹, Kim Eiselein¹, Kurt Toenjes¹, and David Butler¹. ¹Montana State University – Billings, Billings, MT; ²University of Texas, Austin TX.
- 3:00 – 3:15: **What Makes a Plant Invasive? It Might be a Matter of Microbes** Marnie E. Rout^{1,2}, Ragan M. Callaway¹, and William E. Holben^{1,2}. ¹The University of Montana, Division of Biological Sciences, ²Montana- Ecology of Infectious Diseases. 32 Campus Drive, Missoula, MT
- 3:15 – 3:30: **Ecosystem effects and suitability of microbes as sentinels for elevated CO₂.** Sergio E. Morales and William E. Holben. University of Montana, Missoula, MT.
- 3:30 - 3:45: **Spatial behavior of domestic ranch Felis catus and their effect on Peromyscus maniculatus populations in agricultural buildings.** Maurie McLaughlin, Rick Douglass. Montana Tech of the University of Montana, Butte, MT.

1:00- 3:00 pm Breakout Session III (ELC 202 - ACS)

- 1:00 – 1:15: **Using Sol-Gel Chemistry for New Hybrid Materials.** Erik Johnston, Ed Rosenberg. The University of Montana, Missoula, MT.

- 1:15 – 1:30: **Probing the Mo site of FeMo-co by Synthesis, Spectroscopy, and Theory.** Bradley Towey, Robert Szilagy. Montana State University, Bozeman, MT
- 1:30 – 1:45: **CVD Diamond Oxidation by Hyperthermal Atomic Oxygen.** Linhan Shen, T. K. Minton¹, Z. Shpilman^{2,3}, I. Gouzman², E. Grossman², R. Akhvlediani⁴, A. Hoffman⁴, J. T. Paci⁵. ¹Montana State University; ²Space Environment Section, Israel; ³Department of Physics, Technion, Israel; ⁴Schulich Faculty of Chemistry, Technion, Israel; ⁵University of Victoria, British Columbia.
- 1:45 – 2:00: **Attachment of Ruthenium Organometallic Probes to a Solid Silica Polyamine Composite (SPC) Surface.** Geoffrey Abbott, Ed Rosenberg, Alexander Ross, Ayesha Sharmin. The University of Montana, Missoula, MT.
- 2:00 – 2:15: **Data analysis for ESI-MS of peptides prepared by Labeling Electro Spray Deposition (LESD): a New Process for studying protein interactions.** Douglas Steiner, Jonathan Burden, Patrick Ingham, Nicole Therrien, Christopher Holmes, Daniel Therrien, Paul Martino. Flathead Valley Community College, Kalispell, MT.
- 2:15 – 2:30: **Molecular Basis of Uranium Toxicity.** Katie Burbank, Robert Szilagy. Montana State University, Bozeman, MT.
- 2:30 – 2:45: **Electroless palladium film deposition for thin membrane fuel cell applications.** Matt Berlin, William G. Pinson, Ed Rosenberg, William Gleason, Jay McCloskey. The University of Montana & Montana Tech, Missoula & Butte, MT.
- 2:45 – 3:00: **Evaluation of the Performance of Solvation Models in Ni(SR)₄ Density Functional Theory Calculations.** Kevin A. Murray, Matt Queen, Robert Szilagy. Montana State University, Bozeman, MT.
- 3:00 – 3:15: **Multifunctional nanoapatite particles as potential materials for nano-enhanced applications.** Collette Chorney, Michael Klem, Margaret Davis, Rajendra Kasinath. Montana Tech, Butte, MT.

1:00- 3:00 pm Breakout Session IV (ELC 203 - ACS)

- 1:00 – 1:15: **Enhanced relaxivity and in vivo imaging of macrophage-rich carotid lesions with protein cage based T1-contrast agents.** Shifah Qazi, L. O. Liepold¹, M. Uchida¹, M. J. Abedin¹, H. Kosuge², T. Kitagawa², P. Prevelige³, M. V. McConnell², T. Douglas^{*1}. Montana State University¹, Stanford University School of Medicine², University of Alabama.

- 1:15 – 1:30: **Genetically Programmed in vivo Packaging and Controlled Release of Protein Cargo from Bacteriophage P22.** Alison O’Neil, Trevor Douglas, Courtney Reichhardt, Benjamin Johnson, Peter E. Prevelige Jr. Montana State University, Bozeman, MT.
- 1:30 – 1:45: **Anthracenyl isoxazole amides (AIMs) as potential anticancer therapeutics.** Nathan S. Duncan, Alison K. Kearns, Howard D. Beall, Nick Natale. The University of Montana, Missoula, MT.
- 1:45 – 2:00: **Lateral metalation studies of isoxazole[3,4-d]pyridazinones.** Chris Koerner, Joseph Mirzaei, Nick Natale. The University of Montana, Missoula, MT.
- 2:00 – 2:15: **Synthesis of divalent isoxazole-dihydropyridine for use as a potential drug to combat multiple drug resistance.** Scott Steiger, Nick Natale. The University of Montana, Missoula, MT.
- 2:15 – 2:30: **Microwave Accelerated Synthesis of isoxazole inhibitors of the System X_c⁻ transporter.** Lilly Matti, Dr. Nick Nitale. The University of Montana, Missoula, MT.
- 2:30 – 2:45: **Polymers inside the P22 protein architecture.** Janice Lucon, Trevor Douglas, Ben Johnson, Masaki Uchida. Montana State University, Bozeman, MT.
- 2:45 – 3:00: **Will Cation Binding in the G-quadruplex Cavity Lead to Enhanced Efficacy?** Matthew J. Weaver, Joseph Mirzaei, Nick Natale. The University of Montana, Missoula, MT.