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)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 Wright³, Andrew J Guenthner³, 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.* Demetri 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 Merril-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. Rout¹,², Ragan M. Callaway¹, and William E. Holben¹,² 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.

1:30 – 1:45: CVD Diamond Oxidation by Hyperthermal Atomic Oxygen. Linhan Shen, T. K. Minton¹, Z. Shpilman²,³, I. Gouzman², E. Grossman², R. Akhvlediani¹, 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.


2:15 – 2:30: Molecular Basis of Uranium Toxicity. Katie Burbank, Robert Szilagyi. Montana State University, Bozeman, 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 Szilagyi. 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. Shefah Qazi, L. Q. 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 Xₜ transporterm.** 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.