



TBI Newsletter February 2015

If you have any information you'd like to share regarding students, meetings, awards, published papers, etc., please send to [heather.rauser@montana.edu](mailto:heather.rauser@montana.edu)

## News

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**TURNER FOUNDATION STUDENT AWARDS AVAILABLE:** TBI received a \$10,000 gift from the [Turner Foundation](#). TBI director, Brent Peyton, spent a day in June with media mogul and philanthropist Ted Turner and his family during their 2014 Turner Foundation Educational Retreat in Yellowstone. The Turner family was very engaged and enthusiastic about TBI and our research. **From this gift, TBI is making small awards for educational outreach and for TBI graduate and undergraduate student support.** Awards will be in the \$500 range and can be used for supplies, research travel, workshops, or travel to present student work at conferences. If you have ideas for outreach activities or for a student that would like to be considered for a TBI Turner award, please contact Heather. For outreach awards, plan to submit a brief description of the activity, the targeted audience, and how the funding would be used. For student support, let us know the student's name and lab affiliation, the nature of their research and what the award would be used for. TBI Turner award funding requests should fall outside a faculty member's planned scope of work on existing grant funding. Preference will be given to requests that address TBI relevant outreach, or TBI research related to renewable fuels/chemicals, sustainability, or conservation. Funding requests are currently being accepted.

[Bill Inskip](#) received the Provost's Award for Graduate Research/Creativity Mentoring. The award recognizes faculty members who actively and creatively engage graduate students in their learning experience. **Congratulations Bill!**

[Max Amenabar](#), grad student in the Boyd lab, spent several weeks on an expedition in the North Atlantic Ocean collecting subsurface sediments, detailed in this MSU New article, [MSU grad student returns from the sea with ancient samples, unforgettable experience](#). The opportunity to be a part of this expedition was due, in part, to a visit Max had with TBI Seminar speaker Steve D'hondt .

[Trinity Hamilton](#), who earned her Ph.D. here at MSU in 2012 as a member of the Peters lab and an active member of TBI, accepted a position at the University of Cincinnati as Assistant Professor of Biology.

[Mark Young](#) has been invited to be a part of the Provost's [Distinguished Lecture Series](#) on Monday February 9<sup>th</sup>, at the Museum of the Rockies, Hagar Auditorium, 7pm. Mark's talk is *A changing view of viruses: Viruses from Yellowstone's extreme environment*.

[MSU Student Research Celebration](#). Please encourage students to present TBI related research at this celebration for graduate and undergraduate students on April 9<sup>th</sup>. **Abstract submission open until March 6<sup>th</sup>.**

### **Seminars**

[TBI Seminar Schedule](#) Seminar is at 3:10pm, 108 Plant Bioscience Bldg unless otherwise noted

- 2/9 **Jake Beam**, Ph.D. candidate, MSU, Inskeep Lab. *Assembly and Succession of Iron Oxide Microbial Mat Communities in Acidic Geothermal Springs*
- 2/17 **Ramunas Stepanauskas**, Bigelow Laboratory for Ocean Sciences. *Single cell genomics: from science fiction to mainstream microbiology* **\*\*SEMINAR IS ON TUESDAY, Feb. 17 in the Byker Auditorium (CBB) at 2:10pm due to President's Day holiday.**
- 2/23 **Brian Hedlund**, University of Nevada, Las Vegas *Insights into candidate microbial phyla inhabiting geothermal springs in the Great Basin, China, and Yellowstone*
- 3/2 **Haluk Beyenal**, Washington State University, TBA
- 3/16 **Zack Jay**, MSU, Inskeep Lab. TBA
- 3/23 **Luke McKay**, MSU Post Doctoral Researcher, Boyd Lab, TBA
- 3/30 **Dave Lageson**, MSU, Dept. of Earth Sciences,. *Variability in stromatolite morphology, Paleoproterozoic Nash Formation (~2.0 Ga), Medicine Bow Mountains, Wyoming: biogenic versus non-biogenic influences*
- 4/13 **Zoe Harrold**, MSU, Post Doctoral Researcher, Skidmore and Boyd Labs. TBA
- 4/20 **John Coates**, UC Berkeley, TBA

[Chemistry & Biochemistry Dept. Seminars](#) Seminar is at 3:10pm, Byker Auditorium, CBB unless otherwise noted.

- 2/13 **Courtney Aldrich**, Associate Professor, Department of Medicinal Chemistry, University of Minnesota. TBA
- 2/17 **Mark Kleven** will defend his Ph.D. in biochemistry beginning with a seminar titled *Biochemical Characterization of the STEAP Family of Metalloreductases* at 9am in 108 PBB. Mr. Kleven is a member of Martin Lawrence's lab.
- 2/20 **Susy Kohout**, Department of Cell Biology and Neuroscience. TBA
- 2/25 **Vanessa Murray** will give a 4th year graduate student seminar, *Inelastic and Reactive Scattering Dynamics of Hyperthermal O Atoms on Carbon at High Temperatures*. Byker Auditorium at 4 pm. Ms. Murray is a member of the Minton lab.
- 2/27 **David Mulder**, National Renewable Energy Lab. TBA

[Micro Seminars](#) Seminars are Tuesdays at 4:10pm in 103 Reid Hall unless otherwise noted

- 2/10 **Michael Reidy**, MSU, Dept. of History, Philosophy and Religious Studies. *Darwin, Mountains, and Mountaineering*
- 3/3 **Paramvir Dehal**, Lawrence Berkeley National Lab. TBA Dr. Dehal is a guest of Matthew Fields.

[CBE Seminars](#) (Seminar is at 4:10pm, 321 Roberts Hall)

- 2/12 **Lewis Semprini**, Distinguished Professor, Environmental Engineering, Oregon State University. *Reduction dehalogenation of Trichloroethene (TCE) and Perchloroethene (PCE) in chemostat reactors continuous flow columns*
- 2/26 **Diane Walker**, Research Engineer, Standardized Biofilms Methods Laboratory, CBE and **Kelli Buckingham-Meyer**, Research Assistant, Standardized Biofilms Methods Laboratory, CBE. *Transforming Laboratory Protocols into a Quality System*

- 3/5 **Rosa Oliveira**, CBE Visiting Postdoctoral Researcher. *Interactions between cariogenic bacteria: Susceptibility to chlorhexidine using drip-flow reactor*
- 3/19 **Dr. Federica Villa**, CBE Visiting Researcher. *Subaerial biofilms: New horizons in stone biodeterioration research*

[LRES Seminars](#) 1:10pm 346 Leon Johnson Hall

- 2/23 **Selena Ahmed**, Assistant Professor, SFBS, MSU. *Tea and the taste of climate change: A socio-ecological model to examine specialty crop quality*
- 3/2 **Jason Wood**, Graduate Student and IGERT Intern, LRES, MSU. *Ecotype simulation: Demarcation of bacterial species from DNA sequences using ecological theory*
- 3/16 **Michelle Flenniken**, Assistant Research Professor, PSPP, MSU. *Honey bee pathogen and immune pathway discovery*

[IoE Seminars](#) (Seminar is Wednesday at noon in EPS 126)

#### **National & International Meetings 2015**

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- April 12-17 [European Geosciences Union General Assembly 2015](#)
- May 3-7 [Joint Assembly AGU, GAC, MAC, CGU](#) Montreal, Canada
- June 15-19 [Astrobiology Science Conference \(AbSciCon\) 2015](#) Chicago, Illinois *Abstract Submission Deadline: March 4, 2015*
- Aug 16-21 [Goldschmidt 2015 Prague, CZ](#) Abstract Submission Deadline: April 2, 2015

#### **Student & Early Career Opportunities**

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The Department of Energy's (DOE) Office of Science is pleased to announce that [the Office of Science Graduate Student Research \(SCGSR\) program is now accepting applications for the 2015 solicitation](#). **Applications are due 5:00pm ET on Tuesday April 14, 2015.**

The SCGSR program supports supplemental awards to outstanding U.S. graduate students to conduct part of their graduate thesis research at a DOE national laboratory in collaboration with a DOE laboratory scientist for a period of 3 to 12 consecutive months—with the goal of preparing graduate students for scientific and technical careers critically important to the DOE Office of Science mission. The SCGSR program is open to current Ph.D. students in qualified graduate programs at accredited U.S. academic institutions, who are conducting their graduate thesis research in targeted areas of importance to the DOE Office of Science. The research opportunity is expected to advance the graduate students' overall doctoral thesis while providing access to the expertise, resources, and capabilities available at the DOE laboratories. The supplemental award provides for additional, incremental costs for living and travel expenses directly associated with conducting the SCGSR research project at the DOE host laboratory during the award period.

The Office of Science expects to make approximately 100 awards in 2015, for project periods beginning anytime between October 2015 and September 2016. Detailed information about the program, including eligibility requirements and access to the online application system, can be found at: <http://science.energy.gov/wdts/scgsr/>.

### Summer School “Water, Ice and the Origin of Life in the Universe”

**Date: July 1 - 14, 2015** Location: Reykjavík, Iceland **Application Deadline: March 15, 2015**

The summer school “Water, Ice and the Origin of Life in the Universe”, to be held in Iceland from July 1 – 14, 2015, aims to give participants a thorough high-level introduction into the role of water in the evolution of life in the cosmos, starting from formation of water molecules in space and ending with evolution of the first organisms. It will bring together students and researchers from many science fields, making it a truly multidisciplinary event. It is co-organized by the Nordic Network of Astrobiology, the University of Hawai’i at Manoa, the European Astrobiology Campus and the EU COST Action “Origins and Evolution of Life on Earth and in the Universe”. Field studies on the colonization of lava fields and glaciers will complement the lectures. For further information, visit: <http://www.nordicastrobiology.net/Iceland2015>

### Recent Publications by TBI faculty

[Three novel virophage genomes discovered from yellowstone lake metagenomes.](#) Zhou J, Sun D, Childers A, **McDermott TR**, Wang Y, Liles MR. J Virol. 2015 89:1278-1285

[Comprehensive bioimaging with fluorinated nanoparticles using breathable liquids.](#) Kurczy ME, Zhu ZJ, Ivanisevic J, Schuyler AM, Lalwani K, Santidrian AF, David JM, Giddabasappa A, Roberts AJ, Olivos HJ, O'Brien PJ, Franco L, **Fields MW**, Paris LP, Friedlander M, Johnson CH, Epstein AA, Gendelman HE, Wood MR, Felding BH, Patti GJ, Spilker ME, Siuzdak G. Nat Commun. 2015 6:5998

[Biofilm growth mode promotes maximum carrying capacity and community stability during product inhibition syntrophy.](#) Brileya KA, Camilleri LB, Zane GM, Wall JD, **Fields MW**. Front Microbiol. 2014 15:693.

[Dissolved inorganic carbon enhanced growth, nutrient uptake, and lipid accumulation in wastewater grown microalgal biofilms.](#) Kesaano M, Gardner RD, Moll K, Lauchnor E, **Gerlach R**, **Peyton BM**, Sims RC. Bioresour Technol. 2014 180C:7-15.

[Autonomous metabolomics for rapid metabolite identification in global profiling.](#) Benton HP, Ivanisevic J, Mahieu NG, Kurczy ME, Johnson CH, Franco L, Rinehart D, Valentine E, Gowda H, Ubhi BK, Tautenhahn R, Gieschen A, **Fields MW**, Patti GJ, Siuzdak G. Anal Chem. 2015 20:884-891

[Arsenite Oxidase Also Functions as an Antimonite Oxidase.](#) Wang Q, Warelw TP, Kang YS, Romano C, Osborne TH, Lehr CR, **Bothner B**, **McDermott TR**, Santini JM, Wang G. Appl Environ Microbiol. 2015 Jan 9 [Epub ahead of print]

[Identification of anaerobic arsenite-oxidizing and arsenate-reducing bacteria associated with an alkaline saline lake in Khovsgol, Mongolia.](#) Hamamura N, Itai T, Liu Y, Reysenbach AL, Damdinsuren N, **Inskeep WP**. Environ Microbiol Rep. 2014 6:476-782.

[Chemolithotrophic growth of the aerobic hyperthermophilic bacterium Thermocrinis ruber OC 14/7/2 on monothioarsenate and arsenite.](#) Härtig C, Lohmayer R, Kolb S, Horn MA, **Inskeep WP**, Planer-Friedrich B. FEMS Microbiol Ecol. 2014 90:747-760.

[\[FeFe\]-hydrogenase abundance and diversity along a vertical redox gradient in Great Salt Lake, USA.](#) **Boyd ES**, Hamilton TL, Swanson KD, Howells AE, Baxter BK, Meuser JE, Posewitz MC, **Peters JW**. Int J Mol Sci. 2014 15:21947-21966.

[\[FeFe\]- and \[NiFe\]-hydrogenase diversity, mechanism, and maturation.](#) **Peters JW**, Schut GJ, **Boyd ES**, Mulder DW, Shepard EM, Broderick JB, King PW, Adams MW. Biochim Biophys Acta. 2014 [epub ahead of print] Review.

[\[FeFe\]-Hydrogenase Maturation: Insights into the role HydE plays in dithiomethylamine biosynthesis.](#) Betz JN, Boswell NW, Fugate CJ, Holliday GL, Akiva E, Scott AG, Babbitt PC, **Peters JW**, Shepard EM, Broderick JB. Biochemistry. 2015 Feb 5. [Epub ahead of print]

[\[FeFe\]-Hydrogenase Oxygen Inactivation Is Initiated at the H Cluster 2Fe Subcluster.](#) Swanson KD, Ratzloff MW, Mulder DW, Artz JH, Ghose S, Hoffman A, White S, Zadvornyy OA, Broderick JB, Bothner B, King PW, **Peters JW**. J Am Chem Soc. 2015 Jan 29. [Epub ahead of print]

[Radical S-Adenosyl-L-methionine Chemistry in the Synthesis of Hydrogenase and Nitrogenase Metal Cofactors.](#) Byer AS, Shepard EM, **Peters JW**, Broderick JB. J Biol Chem. 2014 Dec 4. [Epub ahead of print]