



TBI Newsletter **January 2014**

### **Seminars, Meetings & Workshops**

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[TBI Seminar Schedule](#) (Seminar is at 3:10pm, 108 Plant Bioscience Building)

\*Several more speakers are in the hopper, just waiting on confirmation of dates to announce seminars

Spring Semester Seminars:

**2/3** Vangie Koonce (Peters Lab); Dan MacDonald, Undergrad Workforce Internship Reports

**3/3** Steve D'hondt, University of Rhode Island, TBA

**4/7** Rachel Whitaker, University of Illinois, TBA

**4/14** Bill Inskeep, MSU, TBA

**4/21** Trent Northern, Lawrence Berkeley National Lab, TBA

**4/28** Robert Powers, University of Nebraska, Lincoln, TBA

**5/5** Yukari Maezato, PPNL, TBA

[Café Scientifique](#) TBI Director Brent Peyton will be presenting, *The Unknown Yellowstone: Microbial Discoveries and Biotech Applications*, Thursday, February 20, 6pm, at the Baxter Ballroom, 105 W. Main St., Bozeman. The event is free and open to all. Sponsored by MT INBRE and the Montana COBRE programs at MSU.

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

**1/31** Blake Wiedenheft, MSU, "CRISPR RNA-guided Machines that Respond to Viral Infections in Bacteria"

**2/7** Kyril Solntsev, Georgia Tech, "Photoinduced processes in the Green Fluorescent Protein and its synthetic chromophores."

**2/14** Brian Hale, LSU, "Investigation of the Synthesis of the [8Fe7S] P-Cluster in the Nitrogenase MoFe Protein."

**2/19** Dr. Alison Hulme, University of Edinburgh, TBA

[Micro Seminars](#) (Seminar is at 4pm in 125 Linfield Hall)

**1/28** Dr. Gary Siuzdak; Senior Director of the Scripps Center for Metabolomics and Mass Spectrometry, "Microbiota, Metabolism and the Montana Connection"

[CBE Seminars](#)

### **Summer Courses**

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**2014 International Geobiology Course** John Spear (Colorado School of Mines) along with Frank Corsetti (University of Southern California) are once again pleased to be able to offer the **2014 International Geobiology Course**. Last year's course marked the 10th anniversary of what has become an important course to the ever expanding and growing field of Geobiology. The course

is approximately 5 weeks long and will begin in Los Angeles, California, with a field trip north to several geobiologically relevant sites in the Mono Lake, California area, followed by laboratory time at Cal State Fullerton and the USC Wrigley Institute for Environmental Studies on Catalina Island, California. Overall, the course is an intense learning experience, typically for mid-Ph.D. level graduate students. A short video that sums up the experience of the course is available at: <http://www.youtube.com/watch?v=38KC4QYRnJM>

We would appreciate it if you can suggest students to apply. We seek qualified students from any institution from any country. Application and information about the course can be found at: <http://dornsife.usc.edu/wrigley/geobiology> **Applications for the course are due on 15 February 2014.** Questions can be addressed to John Spear at [jspear@mines.edu](mailto:jspear@mines.edu)

**The Lewis and Clark Fund for Exploration and Field Research in Astrobiology** Application **Deadline: February 3, 2014** The American Philosophical Society and the NASA Astrobiology Institute have partnered to promote the continued exploration of the world around us through a program of research grants in support of astrobiological field studies undertaken by graduate students, postdoctoral students, and early career scientists who are affiliated with U.S. institutions. The Lewis and Clark Fund for Exploration and Field Research in Astrobiology is designed for field studies in any area of astrobiology research. Grants may be used for travel and related expenses, including field equipment, up to \$5,000. Applications will be reviewed by a committee that includes members of the NAI, the APS, and the wider science community as needed. Recipients will be designated as Lewis and Clark Field Scholars in Astrobiology.

**Microbial Diversity Summer Course at the Marine Biological Laboratory** Application **Deadline: February 3, 2014** Launched in 1971 by Holger Jannasch, the Microbial Diversity summer course at the Marine Biological Laboratory has trained generations of scientists from diverse backgrounds. The course will be held at MBL July 5 – August 21 and is an intense immersion experience for 20 students that lasts 6.5 weeks.

**NASA Ames Academy for Space Exploration** Application **Deadline: February 7** NASA Ames Academy is a Diverse Summer Program that Focuses on Leadership, Team Building, and Provides Direct Contact with NASA Research in Advanced Science and Engineering. The 10-week summer Academy, for undergraduates and graduate students, runs from the 2nd week of June through the third week of August. Transportation and housing will be provided by NASA in addition to a \$4k stipend from your Space Grant for the summer.

#### **National Meetings**

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**The 3rd International Conference of Geobiology**, June 8-10, 2014, [Wuhan, China](#)  
Registration deadline is **Feb 28, 2014**.

**ISSM 2014: Call for Abstracts** ISSM 2014 is seeking presentations on the newest developments in subsurface microbiology and microbial ecology. **Abstract Deadline: April 1, 2014.**

**Goldschmidt 2014** Goldschmidt2014, Sacramento, CA, will follow the pattern established for the recent Goldschmidt conferences, and should be the prime forum for all recent developments in Geochemistry and related fields. **Abstract deadline: February 8, 2014**

#### **Funding Opportunities**

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### **Moore Foundation: Data-Driven Discovery Initiative**

Our Data-Driven Discovery Initiative seeks to advance the people and practices of data-intensive science, to take advantage of the increasing volume, velocity, and variety of scientific data to make new discoveries. Within this initiative, we're supporting data-driven discovery investigators – individuals who exemplify multidisciplinary, data-driven science, coalescing natural sciences with methods from statistics and computer science. It is anticipated that the DDD initiative will make about 15 awards at ~\$1,500,000 each, at \$200K-\$300K/year for five years. Pre-applications are due **Monday, February 24, 2014 by 5 pm Pacific Time**. We expect to extend invitations for full applications in April 2014. Full applications will be due five weeks after the invitation is sent, currently anticipated for mid-May 2014.

**Deep Life Community Call for Proposals.** The Deep Life Community (DLC) of the Deep Carbon Observatory invites proposals for short-term funding of exploratory projects and/or activities aimed at addressing the DLC's decadal goals and/or strengthening the international DLC community and its abilities to generate funding for new and ongoing initiatives. [Click here for more info.](#)

**Center for Dark Energy Biosphere Investigations research support.** C-DEBI is the community-initiated means of providing the collaborative framework and support that we believe is needed for new research projects to be developed in the deep subsurface biosphere. [Click her for more info.](#)

### **Undergrad opportunities**

#### **The UNLV REU Environmental Microbiology program is accepting applications.**

This NSF supported program provides students with an opportunity to perform independent research under the guidance of a faculty mentor. Participants receive a \$5,000 stipend (\$500 per week), travel subsidy and complimentary housing in a UNLV dormitory.

The program dates are May 27 to Aug 1, 2014. Please direct your undergraduates to the list of mentors and the on-line application at <http://faculty.unlv.edu/microreu/> The application deadline is Friday February 14, 2014. A complete application includes a one-page career essay, transcripts and one letter of recommendation. Interested students please contact:

Kurt M. Regner, Ph.D.  
[kurt.regner@unlv.edu](mailto:kurt.regner@unlv.edu)

### **Faculty & relevant publications & presentations**

#### **[Genomic analysis reveals key aspects of prokaryotic symbiosis in the phototrophic consortium "Chlorochromatium aggregatum"](#)**

Liu Z, Müller J, Li T, Alvey RM, Vogl K, Frigaard NU, Rockwell NC, Boyd ES, Tomsho LP, Schuster SC, Henke P, Rohde M, Overmann J, Bryant DA. Genome Biol. 2013 Nov 22;14(11):R127. [Epub ahead of print]

#### **[Competition for ammonia influences the structure of chemotrophic communities in geothermal springs.](#)**

Hamilton TL, Koonce E, Howells A, Havig JR, Jewell T, de la Torre JR, Peters JW, Boyd ES. Appl Environ Microbiol. 2014 Jan;80(2):653-61. doi: 10.1128/AEM.02577-13. Epub 2013 Nov 15. PMID: 24242238 [PubMed - in process]

[Mercuric reductase genes \(merA\) and mercury resistance plasmids in High Arctic snow, freshwater and sea-ice brine.](#) Møller AK, Barkay T, Hansen MA, Norman A, Hansen LH, Sørensen SJ, Boyd ES, Kroer N. FEMS Microbiol Ecol. 2014 Jan;87(1):52-63. doi: 10.1111/1574-6941.12189.

[Hydrogenase Activity of Mineral-Associated and Suspended Populations of Desulfovibrio desulfuricans Essex 6.](#) Reardon CL, Magnuson TS, Boyd ES, Leavitt WD, Reed DW, Geesey GG. Microb Ecol. 2013 Nov 6. [Epub ahead of print]

[Expanding the paradigm of thiol redox in the thermophilic root of life.](#)

Heinemann J, Hamerly T, Maaty WS, Movahed N, Steffens JD, Reeves BD, Hilmer JK, Therien J, Grieco PA, Peters JW, **Bothner B**. Biochim Biophys Acta. 2013 Aug 17;1840(1):80-85. doi: 10.1016/j.bbagen.2013.08.009. [Epub ahead of print]

[Direct measurement and characterization of active photosynthesis zones inside wastewater remediatng and biofuel producing microalgal biofilms](#) Bernstein, H.C.; Kesaano, M.; Moll, K.; Smith, T.; Gerlach, R.; Carlson, R.P.; Miller, C.D.; Peyton, B.M.; Cooksey, K.E.; Gardner, R.D.; Sims, R.C. (2014): Direct measurement and characterization of active photosynthesis zones inside wastewater remediatng and biofuel producing microalgal biofilms. *Bioresource Technology*. Accepted, Jan 03, 2014.

[Cellular Cycling, Carbon Utilization, and Photosynthetic Oxygen Production during Bicarbonate-Induced Triacylglycerol Accumulation in a Scenedesmus sp.](#) Gardner, R.D.; Lohman, E.J.; Cooksey, K.E.; Gerlach, R.; Peyton, B.M. (2013): Cellular Cycling, Carbon Utilization, and Photosynthetic Oxygen Production during Bicarbonate-Induced Triacylglycerol Accumulation in a *Scenedesmus* sp. *Energies*. *Energies* 2013, 6(11), 6060-6076;

[Taxis Toward Hydrogen Gas by Methanococcus maripaludis.](#) Brileya, K., Connolly, J.; Downey, C.; Gerlach, R.; Fields, M.W. (2013): *Nature Scientific Reports*. 3:3140.

### **Awards & Press**

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**Brent Peyton** received the [Vice President for Research's Meritorious Technology/Science Award](#). It carries a \$2,500 honorarium and recognizes MSU faculty members who have made at least one significant technological or scientific contribution that could be transferred or already has been transferred to the private sector.

[MSU research into algal biofuels propels larger study](#) **Robin Gerlach's** research was highlighted by MSU News Service

### **Services**

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TBI has a host of resources available to TBI faculty, students and affiliates. If you are writing a grant proposal and need to include a broader impacts section, the outreach staff can provide you with boilerplate information and/ or consult with you on outreach ideas. The team can also help you with grant writing and proposal submission. For information on any of the services, contact Heather Rauser: 994-7039 or [heather.rauser@montana.edu](mailto:heather.rauser@montana.edu)

### **RESEARCH AND OUTREACH ACTIVITIES**

- Seminar series / public lectures
- YNP research permits

- Industry relations and internships
- Grant administration and submissions
- Broader impacts language for grants

#### **COMMUNICATIONS ACTIVITIES**

- Communications, public relations, working with the media
- TBI Web site
- Photographing and filming projects
- Graphic design / logo usage
- Science communications training for students

#### **Distance learning and educational technologies**

- Online course development and delivery
- Webinars, videoconferencing
- Online communities / social media
- Databases, Web multimedia

#### **University Outreach Programs and Events**

- Expanding Your Horizons for Girls
- NanoDays
- Peaks & Potentials youth camp
- Montana Girls STEM Collaborative
- Working with K-12 schools / teachers
- Museum events, exhibits
- Citizen science projects