



The "Sharing Economy" of Microbes and Microbial Communities: Adaptations and Applications

July 15 - 16, 2017

Chairs

Amalie Tuerk Levy and Aaron W. Puri

Mount Holyoke College

50 College Street

South Hadley, MA, US

Conference Description

The Gordon Research Seminar on Applied and Environmental Microbiology is a unique forum for early career researchers to present their latest results, exchange cutting-edge research approaches and ideas, and network with other peer-level scientists during two oral scientific sessions and two interactive poster sessions. A mentoring session and panel discussion provide the opportunity for young scientists to use four experts from diverse areas of research as sounding boards for their own scientific interests and expectations.

As with all forms of life, microbes are subject to economies of energy, macro- and micro-nutrients, physical space, and other resources. These economies govern microbial physiology and metabolism from the single cell to stochastic interactions within mixed microbial ecosystems. This GRS seeks to explore strategies and mechanisms adopted by microbes to cope with limited resources in systems ranging from lab- and industrial-scale monocultures to complex environmental communities. Discussions on how this knowledge can be leveraged to improve biotechnological processes and address issues of climate change, waste remediation, and human health are encouraged.

Related Meeting



This GRS will be held in conjunction with the "Applied and Environmental Microbiology" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

Conference Program

Saturday	
2:00 pm - 5:00 pm	Arrival and Check-in
3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	Keynote Session: Next Generation High Throughput Methodologies Resolving Applied and Environmental Microbiology Issues Discussion Leader: Aaron Puri (University of Washington, USA)
3:45 pm - 4:15 pm	John Coates (University of California, Berkeley, USA) "Next Generation High Throughput Methodologies Resolving Applied and Environmental Microbiology Issues"
4:15 pm - 4:30 pm	Discussion
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Microbial Strategies to Cope with Limited Resources Discussion Leader: Kumari Richa (University of East Anglia, United Kingdom)
7:30 pm - 7:45 pm	Duygu Dikicioglu (University of Cambridge, United Kingdom) "Yeast as an Iron Hunter/Gatherer of the Wilderness"
7:45 pm - 7:50 pm	Discussion
7:50 pm - 8:05 pm	Wenyu Gu (University of Michigan, USA) "Biosynthesis Pathway of Methanobactin"
8:05 pm - 8:10 pm	Discussion

8:10 pm - 8:25 pm	Michaela Mausz (University of Warwick, United Kingdom) "High Affinity Uptake of Choline and Glycine Betaine by Bacteria in Surface Seawater"
8:25 pm - 8:30 pm	Discussion
8:30 pm - 8:45 pm	Michael Christopher Macey (University of East Anglia, United Kingdom) "Characterisation of Methylootrophs in the Rhizosphere Through Stable Isotope Probing"
8:45 pm - 8:50 pm	Discussion
8:50 pm - 9:05 pm	Taniya Roy Chowdhury (Pacific Northwest National Laboratory, USA) "Functional Response of the Soil Microbiome to Nutrient and Moisture Perturbations"
9:05 pm - 9:10 pm	Discussion
9:10 pm - 9:25 pm	Lucie Semeneć (La Trobe University, Australia) "Deciphering the Electric Code of <i>Geobacter sulfurreducens</i> Adaptive Evolution in Cocultures with <i>Pseudomonas aeruginosa</i> via SWATH-MS Proteomics"
9:25 pm - 9:30 pm	Discussion
Sunday	
7:30 am - 8:30 am	Breakfast
9:00 am - 11:00 am	Approaches and Techniques for Harnessing the Economic Efficiency of Microbes in Biotechnology-Based Processes Discussion Leader: Nasmille Mejia-Florez (University of East Anglia, United Kingdom)
9:00 am - 9:15 am	Jo Philips (Ghent University, Belgium) "Novel Acetogenic Bacteria Isolated with Metallic Iron as Sole Electron Donor"
9:15 am - 9:20 am	Discussion

9:20 am - 9:35 am	Changman Kim (Pusan National University, South Korea) "Regulation of Bacterial Redox State Using Bioelectrochemical Control for the Improvement of Productivity of Platform Chemical Production"
9:35 am - 9:40 am	Discussion
9:40 am - 9:55 am	Christine Shulse (DOE Joint Genome Institute, USA) "Discovery, Transfer, and Characterization of Novel Phytase Genes for Utilization of Recalcitrant Phosphate"
9:55 am - 10:00 am	Discussion
10:00 am - 10:15 am	Ty Samo (Lawrence Livermore National Laboratory, USA) "Microscale Examinations of Physical Associations Mediating Mutualisms Between Microalgae and Bacteria"
10:15 am - 10:20 am	Discussion
10:20 am - 10:35 am	Tomas Richardson-Sanchez (University of Sydney, Australia) "Exploiting the Biosynthetic Machinery of <i>Streptomyces pilosus</i> to Re-Engineer a Zirconium(IV) Chelator"
10:35 am - 10:40 am	Discussion
10:40 am - 10:55 am	Dipti Nayak (University of Illinois at Urbana-Champaign, USA) "Cas9-Mediated Genome Editing in the Methanogenic Archaeon <i>Methanosarcina acetivorans</i> "
10:55 am - 11:00 am	Discussion
11:00 am - 12:30 pm	Poster Session <i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i>
12:30 pm - 1:30 pm	Lunch

1:30 pm - 2:30 pm	<p>Mentorship Component: Career Panel Discussion</p> <p><i>Mentoring and networking are important parts of a successful career in science. That is why the GRS AEM is offering a mentoring session featuring leaders from the Applied and Environmental Microbiology field. The invited experts from academia, industry, and government-sponsored laboratories will participate in a panel discussion, where GRS participants will be able to ask questions and the mentors will share their knowledge and experience.</i></p> <p>Discussion Leader: Amalie Tuerk Levy (Janssen Research & Development, USA)</p>
1:30 pm - 2:30 pm	<p>Panel Discussion</p> <p><i>Fulfilling Work and Enriched Lives: Navigating Scientific Career Paths in Applied and Environmental Microbiology</i></p> <ul style="list-style-type: none"> • Denise Akob (U.S. Geological Survey, USA) • John Coates (University of California, Berkeley, USA) • Kirsten Kusel (Friedrich Schiller University Jena, Germany) • Derek Wells (Antheia Inc., USA)
2:30 pm - 3:00 pm	<p>Evaluation Period</p> <p><i>Fill in GRS Evaluation Forms</i></p>
3:00 pm	Seminar Concludes

Contributors

		
		