

2017

Symposium Speakers, affiliation, and Presentation topic

Vladimiro Mujica, Ph.D. — Arizona State Univ.

The Toolbox of Theoretical Chemistry: Modeling Solar Cells and Photovoltaic Devices

Abstract not available yet.

Christina Kellogg, Ph.D. – U.S. Geological Survey

Deep-Sea Coral Microbiomes and Environmental Metagenomics

Dr. Kellogg uses molecular tools to characterize baseline microbiomes in deep-sea coral species. These cold-water corals live hundreds to thousands of meters deep and do not have photosynthetic symbionts, leading to the hypothesis that heterotrophic microbes may have a larger role in nutrient cycling in these corals. She is also using metagenomics to look for linkages between submarine groundwater discharge and tropical coral disease.

Ana Moore, Ph.D. – School of Molecular Sciences, Arizona State University, Tempe, AZ

Proton coupled electron transfers in artificial photosynthetic constructs

In photosystem II (PSII) nature employs a TyrZ-His190 pair as redox relay between P680 and the oxygen evolving complex, where water oxidation takes place. The relay is involved in a proton coupled electron transfer (PCET) process. We model this process with benzimidazole-phenol (BIP) derivatives including substituents that mimic the hydrogen bond network surrounding the natural relay.

Thomas Moore, Ph.D. – Center for Bioenergy & Photosynthesis, School of Molecular Sciences,
Arizona State University, Tempe, AZ

Artificial photosynthesis is necessary to help nature regain control of the global carbon cycle

Fossil fuel combustion has upset the balance between the slow carbon cycle (carbon in fossil fuels/rocks) and the fast cycle (carbon in photosynthetic/respiration/decay), which has overwhelmed the capacity of photosynthesis to control the carbon cycle. Artificial photosynthetic constructs will be described that can help nature restore the balance.

Tim Whitehead, Ph.D. – Chemical Engineering and Materials Science, Michigan State Univ.

Programming Proteins by Deep Sequencing and Design

Proteins are designable agents in medicine (e.g. monoclonal antibodies like Rituximab that can target and destroy non-Hodgkin lymphomas) and in industry (e.g. enzymes that can deconstruct cellulosic biomass to simple carbohydrates). Yet natural proteins are not always optimal for such applications, and current methods of improving proteins can be expensive and laborious. My talk will present an overview of methods my lab has built for optimization of existing proteins and creating proteins from scratch using computational design.

First

Annual

Research

Symposium

January 28, 2017

Welcome to the 1st RISE Annual Research Symposium at UPR-Cayey

This activity aims at fostering scientific exchange between our research mentors and scientists based in mainland USA. A series of research talks from invited speakers will introduce areas for establishing collaborations for future investigations by UPR-Cayey scientists. Breakout sessions will allow the participants to find common research grounds, to explore possible hypotheses, and consider work plans for the future. In addition, our undergraduate students will also have a great opportunity to learn about summer research internships and graduate school opportunities at the institutions of the invited speakers.

We hope that today will sow the seeds for longstanding research partnerships, and look forward with enthusiasm to listening, sharing, and enjoying SCIENCE!

If you are interested or have a question, please ask the speaker.
Your interest acknowledges the success of the presenter.

Current RISE Research Mentors at UPR-Cayey

Dr. Vibha Bansal
Dr. Dalvin Mendez
Dr. Michael Rubin
Dr. Juan Santana

Administrative Support

Mr. Giovanni Cruz
Mr. Michael Vicente

RISE Personnel

Dr. Vibha Bansal – Director
Dr. Eneida Diaz – Freshmen Skills Coordinator
Dr. Robert Ross – Coordinator for Seminars/ Workshops
& for Undergraduate Research Experience

Program – January 28th New Science Building (NEC)- Auditorium

8:00 – 8:45 Registration & Breakfast (Cafeteria)

9:00 – 11:30 Registration in NEC Lobby

9:00 Welcoming Remarks –

Mario Medina, Ph.D.,

– UPR-Cayey, Chancellor

Robert Ross, Ph.D.,

– RISE, Research Coordinator

9:15 Vladimiro Mujica, Ph.D.

– Arizona State Univ.

10:00 Christina Kellogg, Ph.D.

– U.S. Geological Survey

10:45 Coffee Break

11:05 Ana Moore, Ph.D.

– Arizona State Univ.

11:50 Lunch *

1:00 Thomas Moore, Ph.D.

– Arizona State Univ.

1:45 Tim Whitehead, Ph.D.

– Michigan State Univ.

2:30 General Discussion

3:00 Coffee Break

3:20 Breakout Sessions

4:30 Session Ends

Refreshments Provided by Private Donations



* Student Union Cafeteria

