

Molecules Come to Life

scialog2015[®]

The First Annual Scialog Conference
March 12-15, 2015 at Biosphere 2

GORDON AND BETTY
MOORE
FOUNDATION

RESEARCH CORPORATION
for SCIENCE ADVANCEMENT



Contents

From the Research Corporation President	2
From the Gordon and Betty Moore Foundation President	3
From the Program Officers	4
Agenda	6
Keynote Speakers	8
Proposal Guidelines	12
Discussion Facilitators	13
Scialog Fellows	14
Conference Participants	16

Scialog: Molecules Come to Life

From the Research Corporation President

Welcome to the first annual **Scialog: Molecules Come to Life** conference.

Research Corporation for Science Advancement (RCSA) is delighted to be joined in this two-year program by our co-sponsor, the Gordon and Betty Moore Foundation. Our collective goal is to focus on untested ideas and to champion innovative thinking in an effort to understand more completely the processes at the cellular level which are fundamental to life.

Although Scialog's over-arching purpose is to solve real-world problems of global significance, the program is wholly dedicated to supporting discovery science—basic research; and its funding is aimed squarely at early career scientists. Thus, we expect—nay, encourage—lively discussions over the next few days. This is surely the right place and time to air that wild idea or nagging hunch that may have occurred while you were performing research of a more “incremental” bent.

Also, through the unique Scialog process, we seek to lay the foundations for a long-lived creative, cross-disciplinary community that is prone to producing breakthrough science. To that end, under the supervision of program directors Richard Wiener, Silvia Ronco (both RCSA) and Gary Greenburg (Moore), you will very likely find yourselves engaged in passionate discussions with colleagues you have probably never before encountered. I assure you the process will be painless, but stimulating.

RCSA's collaboration with the Gordon and Betty Moore Foundation in this endeavor represents an attempt at community building on the organizational level as well. Our fundamental premise, which applies to science philanthropies as well as to the bright people we support, is that in a complex, dynamic world collaboration and innovation are essential keys to success.

Participate, communicate—and enjoy!

Robert N. Shelton

President

Research Corporation for Science Advancement

From the Gordon and Betty Moore Foundation President

Welcome to **Scialog: Molecules Come to Life**. The Gordon and Betty Moore Foundation is pleased to join with Research Corporation for Science Advancement to promote work at the intersection of biological and physical science—work being done by researchers like you.

The Gordon and Betty Moore Foundation invests in discovery-driven, high-impact research to advance knowledge in existing and emerging fields. This conference exemplifies our high-risk, high-reward approach to tackling important scientific problems.

This conference is an experiment of sorts to begin building a community of researchers that embrace the different approaches that biologists and physical scientists, theorists and experimentalists bring to bear on important biological questions and extend our understanding of the natural world.

In this spirit, we encourage you to push yourself to think beyond your current work and to allow ideas to develop organically and collaboratively. We hope that your interactions at this event will lead to productive and long-lasting collaborations that demonstrate the power of uniting theory and experiment in solving critical biological problems.

Please take this opportunity to experience the diversity of backgrounds and areas of expertise that you all represent, and have fun in the process.

Enjoy the conference!

Harvey V. Fineberg

President

Gordon and Betty Moore Foundation

Scialog: Molecules Come to Life

From the Program Officers

This year we are holding the first **Scialog: Molecules Come to Life** conference, which continues Research Corporation's tradition of highly interactive Scialog meetings on scientific topics of great importance with a focus on identifying bottlenecks and finding innovative ideas for potential breakthroughs. The emphasis of Scialog meetings is on science dialog, networking and building new collaborations to pursue novel, high-risk discovery research.

The Gordon and Betty Moore Foundation and Research Corporation chose to focus this Scialog on the topic of quantitatively understanding the physical biology of cells and their interactions because we believe this critical area of science is on the cusp of major breakthroughs. But we just as firmly believe these breakthroughs can be accelerated by physicists, biologists and those in related fields crossing disciplinary boundaries to work collaboratively, particularly with theorists and experimentalists combining efforts. The goal of Scialog: Molecules Come to Life is to catalyze multidisciplinary collaborations between Scialog Fellows, a highly select group of exemplary early career U.S. scientists.

We have four outstanding keynote speakers:

- **Ken Dill** Director, Louis and Beatrice Laufer Center for Physical and Quantitative Biology at Stony Brook University
- **Daniel Fisher** Professor of Applied Physics, Stanford University
- **Jané Kondev** Chair of Physics and of Quantitative Biology, Brandeis University
- **Boris Shraiman** Kavli Institute for Theoretical Physics at the University of California, Santa Barbara

We also have outstanding discussion facilitators including **Myriam Cotten**, Hamilton College; **Daniel Cox**, University of California, Davis; **Holly Goodson**, University of Notre Dame; **Martin Gruebele**, University of Illinois at Urbana-Champaign; **Taekjip Ha**, University of Illinois at Urbana-Champaign; **Rigoberto Hernandez**, Georgia Institute of Technology; **Cristina Marchetti**, Syracuse University; and **José Onuchic**, Rice University.

Scialog conferences focus on dialog and team building with the goal of creating novel strategies for overcoming research barriers that require collaborative approaches. An important feature of Scialog meetings is the opportunity for Scialog Fellows to form teams and write proposals to pursue particularly creative ideas that emerge through the dialog. We hope this competition is exciting, but regardless of which proposals are funded, the purpose is to catalyze a deeper and more meaningful exchange of ideas than ordinarily occurs at scientific conferences. Our goal is for this process to facilitate participants gaining new insights and connections that significantly advance efforts to understand the physical biology of cells.

We hope each of you finds the Scialog experience of great value. Please do not hesitate to provide feedback on how to make the conference better. We are here to listen and to make this a great experience for you!

Richard Wiener
Program Director
Research Corporation

Gary Greenburg
Program Officer
Gordon and Betty Moore Foundation

Scialog: Molecules Come to Life

Conference Agenda Biosphere 2 March 12-15, 2015

Thursday, March 12

1:00 pm	Registration Opens	Visitor Center
3:30 - 4:30 pm	Optional Tour of Biosphere 2	Visitor Center
5:00 - 6:30 pm	Poster Session and Reception	Biosphere 2 Plaza
6:30 - 7:30 pm	Dinner	Biosphere 2
7:30 - 7:40 pm	Welcome Robert Shelton, <i>President, RCSA</i>	Biosphere 2
7:40 - 8:00 pm	Conference Overview, Hoped for Outcomes & Guidelines for Collaborative Proposals Gary Greenburg, <i>Program Officer, Moore</i> Richard Wiener, <i>Program Director, RCSA</i>	Biosphere 2
8:00 - 9:00 pm	Introductions	Biosphere 2
9:00 - 10:00 pm	MCL Café Wine, Beer, Conversations, etc.	Café Patio

Friday, March 13

7:00 - 8:00 am	Breakfast	Café Patio
8:00 - 9:15 am	Keynote Presentations Ken Dill <i>Will biology ultimately be understood in terms of "Grand Principles", as physics is?</i> Boris Shraiman <i>From Genes and Molecules to "Growth and Form"</i>	Sahara Room
9:15 - 10:15 am	Breakout Session I	Multiple Rooms
10:15 - 10:30 am	Morning Break & Conference Photo	
10:30 - 11:30 am	Breakout Session II	Multiple Rooms
11:30 am - 12:00 pm	Mini Breakout Session	Multiple Rooms
11:45 - 1:00 pm	Lunch	Café Patio
1:00 - 2:30 pm	Scialog Fellow Presentations	Sahara Room
2:30 - 3:30 pm	Mini Breakout Sessions	Multiple Rooms
3:30 - 4:30 pm	Afternoon Break	
4:30 - 6:30 pm	Poster Session and Reception	Biosphere 2 Plaza
6:30 - 7:30 pm	Dinner	Biosphere 2
7:30 - 10:00 pm	MCL Café Wine, Beer, Conversations, etc.	Café Patio

Saturday, March 14

6:00 - 7:00 am	Optional Nature Hike/Run	B2 Trails
7:00 - 8:00 am	Breakfast	Café Patio
8:00 - 8:45 am	Scialog Fellow Presentations	Sahara Room
8:45 - 10:00 am	Keynote Presentations Daniel Fisher <i>Evolution and modeling cell biology</i> Jané Kondev <i>Genes and Effective Theories of the Cell</i>	Sahara Room
10:00 - 10:15 am	Morning Break	
10:15 - 11:15 am	Breakout Session III	Multiple Rooms
11:15 - 12:00 am	Scialog Fellow Presentations	Sahara Room
12:00 - 1:00 pm	Lunch	Café Patio
1:00 - 2:00 pm	Breakout Session IV	Multiple Rooms
2:00 - 6:00 pm	Team Formation, Informal Discussion, & Proposal Writing Proposals due 8:00 am Sunday morning.	Multiple Rooms
2:00 - 2:30 pm	Meeting: Fellows who have not yet formed teams	Sahara Room
6:00 - 6:30 pm	Reception	Biosphere 2 Plaza
6:30 - 7:30 pm	Dinner	Biosphere 2
7:30 - 10:00 pm	MCL Café and Proposal Writing Wine, Beer, Conversations, etc.	Café Patio

Sunday, March 15

7:00 - 8:00 am	Breakfast	Café Patio
8:00 - 8:30 am	Assessment Survey	Sahara Room
8:30 - 10:30 am	Presentations of Proposal Ideas	Sahara Room
10:30 - 11:00 am	Conference Wrap-up	Sahara Room
11:00 - 12:00 pm	Lunch Available to go	Café Patio

Keynote Speaker

Will biology ultimately be understood in terms of “Grand Principles,” as physics is?

Ken Dill

Director, Louis and Beatrice Laufer Center for Physical and Quantitative Biology at Stony Brook University



Abstract: In 1996, in *Current Biology*, Lewis Wolpert raised the following questions: Do we already know all the principles of biology? Does it just remain for us to fill in the gene-by-gene details? To me, the situation seems very much the opposite of that. Our past forty years of molecular, structural, cellular, computational and “-omics” biology have given us vast knowledge of atom-by-atom and molecule-by-molecule detail. The great opportunity for the future is now to understand what it all means. It’s an opportunity for leadership from physicists and mathematicians, and for much deeper penetration of model-based thinking into biology. As a small illustration, I will briefly describe our interests in minimalist modeling of cell properties.

Bio: Ken Dill is the Louis and Beatrice Laufer Professor of Physics and Chemistry at Stony Brook University and the Director of the Laufer Center for Physical and Quantitative Biology. Previously, he was on the faculty of the University of California, San Francisco. Dill received SB and SM degrees from MIT in Mechanical Engineering, a PhD in Biology at the University of California, San Diego, and did postdoctoral research in Chemistry at Stanford University. He received the Hans Neurath Award in 1998 from the Protein Society, for his research on structures, properties and folding of proteins. He has been president of the Biophysical Society, and is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. With Sarina Bromberg, he co-authored *Molecular Driving Forces*, a textbook in physical chemistry and statistical mechanics.

His research interests are at the intersection of statistical physics and cell biophysics and structural biology. His work has elucidated that protein folding occurs on funnel-shaped energy landscapes and that protein structures are largely determined by hydrophobic interactions. And, with Dr. Ron Zuckermann, he has developed peptoids, a new class of polymer materials that have protein-like properties.

Keynote Speaker

Evolution and Modeling Cell Biology

Daniel Fisher

Professor of Applied Physics, Stanford University



Abstract: Possible lessons from evolution experiments about disorganization of cells and their evolution, and the question of whether evolution can serve as a useful Ockham's razor for understanding and modeling functions of cells will be discussed.

Bio: Daniel S. Fisher is a theoretical physicist specializing in collective and dynamical phenomena in physics and biology, including cellular biophysics and evolution. His primary current interest is developing quantitative understanding of some of the key dynamical processes underlying evolution, especially of microbes. These range from laboratory experiments, DNA sequencing of natural populations, and modeling the acquisition of multiple and complex mutations of large microbial populations, to development of cancer and the dynamics of the adaptive immune system.

Dr. Fisher was born in London and educated at Cornell and Harvard before joining the technical staff at Bell Laboratories. After stints at Princeton and Harvard, in 2007 he moved to Stanford University where he is David Starr Jordan Professor of Science in the Department of Applied Physics and, by Courtesy, in Biology and Bioengineering. For his research on the physics of disordered systems, he was awarded the Onsager Prize of the American Physical Society in 2013.

Keynote Speaker

Genes and Effective Theories of the Cell

Jané Kondev

Chair of Physics and of Quantitative Biology, Brandeis University



Abstract: In his 2003 Nobel lecture Sydney Brenner remarked: “We are all conscious today that we are drowning in a sea of data and starving for knowledge. The biological sciences have exploded, largely through our unprecedented power to accumulate descriptive facts. How to understand genomes and how to use them is going to be a central task of our research for the future. We need to turn data into knowledge and we need a framework to do it. So genocentric has modern biology become that we have forgotten that the real units of function and structure in an organism are cells and not genes.” I will consider the idea that theory can provide such a framework by focusing on coarse-grained models of cells, which should be capable of describing genetic perturbations in physical terms. For example, how changes in the regulatory DNA sequence lead to changes in the transcriptional output of a cell, or how mutations of an actin binding protein leads to the change in the size and shape of a cytoskeleton structure. I will try to make the case for classifying genes in terms of the material parameters they control, and how this approach might provide new directions for experiments on cells.

Bio: Jané is a theoretical physicist. He was an undergraduate in former Yugoslavia and a graduate student at Cornell with Chris Henley. After postdoctoral work at Brown and Princeton in 1999 he joined the physics department at Brandeis University. His group works on problems in cell and molecular biology using a combination of theoretical and experimental approaches.

Keynote Speaker

From Genes and Molecules
to “Growth and Form”**Boris Shraiman**

*Kavli Institute for Theoretical Physics
at the University of California, Santa Barbara*



Abstract: D’arcy Thompson—a 19th century polymath working at the turn of the 20th century - pondered the question of how living organisms acquire their form by controlled growth. Thompson was a man before his time: a century of progress in Genetics and Molecular Biology offers a great opportunity for modern polymaths. How can we use better understanding of Molecular Genetics to address Thompson’s “big questions”? This talk will suggest that physics-style phenomenological modeling can help to build a bridge from subcellular scales to the organismal scale.

Bio: I am a theoretical physicist with background in statistical physics. PhD 1983 Harvard, postdoctoral fellow at U. Chicago and Bell Labs; Member of Technical Staff at Bell Labs, in the Theoretical Physics Department at Murray Hill for 16 years. Worked on a range of physics problems from correlated electrons and superconductivity to pattern formation and turbulence. Started working on biology problems about 20 years ago, while at Bell Labs. Moved to the present position as a Permanent Member of KITP and a Professor in the UCSB Dept. of Physics in 2004, after two years as a Physics Professor at Rutgers.

Current research interests: 1) Morphogenesis, addressing the problem of “Growth and Form” in animal development. 2) Statistical Genetics, which aims to quantitatively describe evolutionary dynamics in populations. In both subjects my work focuses on the role of interactions. In the case of morphogenesis, these are interactions between cells; in the case of population genetics, the interactions are between genetic polymorphisms. The study of “interactions” both in the developmental biology and in population genetics contexts brings up unexpected but direct and useful connections with statistical physics. Discovering, exploring and exploiting these connections in order to develop new understanding of the biological problems, is the main goal of my research. As a permanent member of KITP I am also deeply involved with developing interdisciplinary programs at KITP aimed at building up the interdisciplinary physics/biology community.

Proposal Guidelines

Collaborative Awards

1. Awards, which are one year in duration, are intended to provide seed funding for teams of two to four Scialog Fellows formed at this conference.
2. Two-page proposals should describe the proposed project and the role of each team member. No budget is necessary. A third page may be used for references.
3. Awards will be in the amount of \$100K (direct funding) and divided between team members according to the team's preference.
4. No Scialog Fellow can be a member of more than two teams. If a Scialog Fellow is a member of two teams, the other team members must be different. No team can submit more than one proposal.
5. Teams are encouraged to:
 - a) Include at least one theorist and one experimentalist and have a theory and experimental component.
 - b) Not include members who have previously collaborated with one another.
 - c) Focus on fundamental research rather than disease-oriented research.
 - d) Base their proposal on an innovative, high-risk, blue sky idea.
 - e) Address an important question in physical cell biology amenable to quantitative modeling.
 - f) Base the proposal on an idea unlikely to garner federal funding because it is too early, cross-cutting or high risk.
6. Additional funding after one year for the most promising projects is possible but not guaranteed.
7. Proposals must be submitted electronically by Sunday morning at 8 am to RCSA Program Directors Richard Wiener (rwiener@rescorp.org) and Silvia Ronco (sronco@rescorp.org) and Moore Program Officer Gary Greenburg (gary.greenburg@moore.org).
8. Awards will be announced in about two months.

Discussion Facilitators

Myriam Cotten

Hamilton College

Daniel Cox

University of California, Davis

Ken Dill

Stony Brook University

Daniel Fisher

Stanford University

Holly Goodson

University of Notre Dame

Martin Gruebele

University of Illinois at Urbana-Champaign

Taekjip Ha

University of Illinois at Urbana-Champaign

Rigoberto Hernandez

Georgia Institute of Technology

Jané Kondev

Brandeis University

M. Cristina Marchetti

Syracuse University

José Onuchic

Rice University

Boris Shraiman

University of California, Santa Barbara

Scialog Fellows

Grégoire Altan-Bonnet

Memorial Sloan-Kettering Cancer Center

Nihal Altan-Bonnet

National Institutes of Health

David Altman

Willamette University

Ariel Amir

Harvard University

Gábor Balázs

Stony Brook University

Aparna Baskaran

Brandeis University

Julie Biteen

University of Michigan

Paul Blainey

Massachusetts Institute of Technology

Scott Brewer

Franklin & Marshall College

Lynette Cegelski

Stanford University

Stirling Churchman

Harvard University

Ibrahim Cissé

Massachusetts Institute of Technology

Eva-Maria Collins

University of California, San Diego

Moumita Das

Rochester Institute of Technology

Danielle Dube

Bowdoin College

Jeremy England

Massachusetts Institute of Technology

Margaret Gardel

University of Chicago

Ethan Garner

Harvard University

Kingshuk Ghosh

University of Denver

Ido Golding

Baylor College of Medicine

Ajay Gopinathan

University of California, Merced

Jeff Gore

Massachusetts Institute of Technology

Thomas Gregor

Princeton University

Brian Hammer

Georgia Institute of Technology

KC Huang

Stanford University

Vanessa Huxter

University of Arizona

Suckjoon Jun

University of California, San Diego

Justin Kinney

Cold Spring Harbor Laboratory

Kirill Korolev

Boston University

Seppe Kuehn

University of Illinois at Urbana-Champaign

Michael Laub

Massachusetts Institute of Technology

Dinah Loerke

University of Denver

Scialog Fellows Continued

Casey Londergan

Haverford College

M. Lisa Manning

Syracuse University

Pankaj Mehta

Boston University

Adilson Motter

Northwestern University

Daniel Needleman

Harvard University

S. Banu Ozkan

Arizona State University

Raghuveer Parthasarathy

University of Oregon

Ashok Prasad

Colorado State University

Steve Pressé

Indiana University-Purdue University Indianapolis

Rae Robertson-Anderson

University of San Diego

Jennifer Ross

University of Massachusetts, Amherst

Michael Rust

University of Chicago

Alvaro Sanchez

Harvard University

Jeremy Schmit

Kansas State University

Gurol Suel

University of California, San Diego

Bo Sun

Oregon State University

Justin Taraska

National Institutes of Health

Megan Valentine

University of California, Santa Barbara

Sarah Veatch

University of Michigan

Joao Xavier

Memorial Sloan Kettering Cancer Center

Chenghang (Chuck) Zong

Baylor College of Medicine

Conference Participants

Grégoire Altan-Bonnet

Memorial Sloan Kettering
altanbog@mskcc.org

Nihal Altan-Bonnet

National Institutes of Health
nihal.altan-bonnet@nih.gov

David Altman

Willamette University
daltman@gmail.com

Ariel Amir

Harvard University
arielamir@seas.harvard.edu

Gábor Balázs

Stony Brook University
gabor.balazsi@stonybrook.edu

Aparna Baskaran

Brandeis University
aparna@brandeis.edu

Julie Biteen

University of Michigan
jsbiteen@umich.edu

Paul Blainey

The Broad Institute, MIT
pblainey@broadinstitute.org

Kathleen Boris-Lawrie

The Ohio State University
mcguire.165@osu.edu

Scott Brewer

Franklin and Marshall College
scott.brewer@fandm.edu

Marian Carlson

Simons Foundation
mcarlson@simonsfoundation.org

Stirling Churchman

Harvard Medical School
churchman@genetics.med.harvard.edu

Ibrahim Cissé

Massachusetts Institute of Technology
icisse@mit.edu

Eva-Maria Collins

University of California, San Diego
emscollins@physics.ucsd.edu

Myriam Cotten

Hamilton College
mcotten@hamilton.edu

Daniel Cox

University of California, Davis
dlcox@ucdavis.edu

Moumita Das

Rochester Institute of Technology
modsps@rit.edu

Ken Dill

Stony Brook University
dill@laufercenter.org

Danielle Dube

Bowdoin College
ddube@bowdoin.edu

Jeremy England

Massachusetts Institute of Technology
jengland@mit.edu

Daniel Fisher

Stanford University
dsfisher@stanford.edu

Margaret Gardel

University of Chicago
gardel@uchicago.edu

Ethan Garner

Harvard University
howlermonkeys@gmail.com

Kingshuk Ghosh

University of Denver
kingshuk.ghosh@du.edu

Conference Participants Continued**Ido Golding**

Baylor College of Medicine
igolding@illinois.edu

Holly Goodson

University of Notre Dame
hgoodson@nd.edu

Ajay Gopinathan

University of California, Merced
agopinathan@ucmerced.edu

Jeff Gore

Massachusetts Institute of Technology
gore@mit.edu

Gary Greenburg

Gordon and Betty Moore Foundation
ggreenburg@gmail.com

Thomas Gregor

Princeton University
tg2@princeton.edu

Martin Gruebele

University of Illinois
mgruebel@illinois.edu

Taekjip Ha

University of Illinois at Urbana-Champaign
tjha@illinois.edu

Brian Hammer

Georgia Institute of Technology
bhammer@gatech.edu

William Harris

Science Foundation Arizona
msorenson@sfaz.org

Rigoberto Hernandez

Georgia Tech
hernandez@gatech.edu

Kerwyn Huang

Stanford University
kchuang@stanford.edu

Vanessa Huxter

University of Arizona
vhuxter@email.arizona.edu

Suckjoon Jun

University of California, San Diego
jun@ucsd.edu

Justin Kinney

Cold Spring Harbor Laboratory
jkinney@cshl.edu

Jane Kondev

Brandeis University
Kondev@brandeis.edu

Kirill Korolev

Boston University
korolev@bu.edu

Seppe Kuehn

University of Illinois at Urbana-Champaign
seppe@illinois.edu

Michael Laub

Massachusetts Institute of Technology
laub@mit.edu

Moses Lee

M. J. Murdock Charitable Trust
mosesl@murdock-trust.org

Dinah Loerke

University of Denver
dinah.loerke@du.edu

Casey Londergan

Haverford College
clonderg@haverford.edu

M. Lisa Manning

Syracuse University
mmanning@syr.edu

M. Cristina Marchetti

Syracuse University
mcmarche@syr.edu

Conference Participants Continued

Christopher Martin

The Kavli Foundation
cmartin@kavlifoundation.org

Pankaj Mehta

Boston University
pankajm@bu.edu

Adilson Motter

Northwestern University
motter@northwestern.edu

Dan Needleman

Harvard University
dan.needleman@gmail.com

José Onuchic

Rice University
jonuchic@ucsd.edu

Patrick Osmer

The Ohio State University
osmer.1@osu.edu

S. Banu Ozkan

Arizona State University
banu.ozkan@asu.edu

Raghuvveer Parthasarathy

University of Oregon
raghu@uoregon.edu

Ashok Prasad

Colorado State University
ashokp@engr.colostate.edu

Steve Pressé

Indiana University – Purdue University Indianapolis
spresse@iupui.edu

Carl Rhodes

Howard Hughes Medical Institute
rhodesc@hhmi.org

Rae Robertson-Anderson

University of San Diego
randerson@sandiego.edu

Silvia Ronco

RCSA
sronco@rescorp.org

Jennifer Ross

University of Massachusetts Amherst
rossj@physics.umass.edu

Michael Rust

University of Chicago
mrust@uchicago.edu

Alvaro Sanchez

Harvard University
sanchez@rowland.harvard.edu

Jeremy Schmit

Kansas State University
schmit@phys.ksu.edu

Robert Shelton

RCSA
rshelton@rescorp.org

Boris Shraiman

University of California, Santa Barbara
shraiman@kitp.ucsb.edu

Gurol Suel

University of California, San Diego
gsuel@ucsd.edu

Bo Sun

Oregon State University
sunb@physics.oregonstate.edu

Sharif Taha

Kavli Foundation
staha@kavlifoundation.org

Justin Taraska

National Institutes of Health
justin.taraska@nih.gov

Megan Valentine

University of California, Santa Barbara
valentine@engineering.ucsb.edu

Conference Participants Continued

Sarah Veatch

University of Michigan
sveatch@umich.edu

Richard Wiener

RCSA
rwiener@rescorp.org

Joao Xavier

Memorial Sloan-Kettering Cancer Center
xavierj@mskcc.org

Chenghang Zong

Baylor College of Medicine
chenghang.zong@bcm.edu

4703 East Camp Lowell Dr.
Suite 201
Tucson, Arizona 85712
Phone 520.571.1111
www.rescorp.org

RESEARCH CORPORATION 
for SCIENCE ADVANCEMENT