

BERAC June 6-7, 2012

**Sharlene Weatherwax, Associate Director of Science
Biological and Environmental Research**



**U.S. DEPARTMENT OF
ENERGY**

**Office
of Science**

**Office of Biological
and Environmental Research**

Current Budget Status

Program Office	FY 2012	FY 2013		
	Current Approp.	President's Request	House Mark	Senate Mark
ASCR	440,868	455,593	442,000	455,593
BES	1,688,093	1,799,592	1,657,146	1,712,091
BER	609,557	625,347	542,000	625,347
FES	400,996	398,324	474,617	398,324
HEP	790,860	776,521	776,521	781,521
NP	547,387	526,938	547,938	539,938
WDTS	18,500	14,500	14,500	14,500
SLI	111,800	117,790	112,313	117,790
S&S	80,573	84,000	82,000	83,000
PD	185,000	202,551	185,000	190,000
SBIR/STTR	—	—	—	—
Subtotal, SC	4,873,634	5,001,156	4,834,035	4,918,104

New Personnel & Personnel Changes



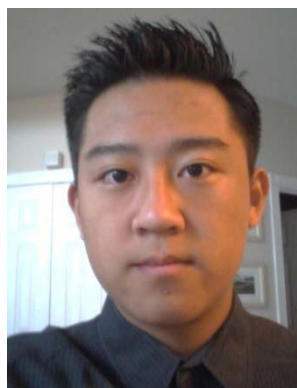
Pablo Rabinowicz

- Federal employee as of June 4
- Genomics, Biosystems design



Todd Anderson

- Director, Biological Systems Sciences Division



Robert Lee

- Summer intern

Office of Science Early Career Awards

- Program purpose:
 - to support the development of individual research programs of outstanding scientists early in their careers
 - to stimulate research careers in DOE Office of Science areas
- Early career is defined as no more than 10 years past Ph.D.
- 9 BER awards (3 laboratory, 6 university) in FY 2012
 - 5 year awards, universities - \$750,000, national labs - \$2,500,000

BER Early Career Scientists FY 2012 - Topics

- (a) Biosystems Design for Bioenergy Production
- (b) Arctic Terrestrial Ecosystem Science
- (c) Subsurface Biogeochemistry
- (d) Uncertainty Characterization for Integrated Earth System Modeling

BER Early Career Scientists FY 2012

Microbial Systems Biology Design for Bioenergy Production



John Dueber
UC Berkeley
Making multi-enzyme pathway compartments in yeast



James McKinlay
Indiana U
Interaction of metabolisms of co-cultured microbes



Samuel Payne
PNNL
Proteomic analysis of complex environmental samples



Jennifer Reed
UW Madison
Engineering cyanobacteria to improve butanol production



Garrett Suen
UW Madison
How do three cow rumen microbes degrade cellulose



Jamey Young
Vanderbilt U
Maximizing carbon flux from CO₂ to biofuels in cyanobacteria

BER Early Career Scientists FY 2012

Arctic Terrestrial Ecosystem Science



Daniel Hayes

ORNL

Model-data perspectives on processes controlling permafrost carbon feedbacks to a warming climate

Ming Ye

Florida State

Reducing predictive uncertainty in groundwater reactive transport modeling



Subsurface Biogeochemistry



Celine Bonfils

LLNL

Detection/attribution of regional climate change - focus on drought precursors

Uncertainty Characterization for Integrated Earth System Modeling

BER staff are well plugged in to interagency coordination

Key leadership roles

- Life Sciences Subcommittee (Committee on Science)
- USGCRP

CESD-related OSTP activities include

- Subcommittee for Global Change Research
- National Earth Observation Task Force on
 - Energy & Earth Data (lead)
 - Climate and Weather Observations
- US Group on Earth Observations
- Subcommittee for Ecological Science
- Interagency Arctic Research Policy Committee
- Air Quality Research Subcommittee
- Carbon Cycle Integrative Working Group
- Integration of S&T for Sustainability (ISTS) Task Force
- *Plus* - Strategic Environmental Research and Development Program
- *Plus* – Intergovernmental Panel on Climate Change

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BSSD-related OSTP activities

- Synthetic Biology Working Group
- Working Group on Plant Genomics
- US-EU Task Force on Biotechnology Research
- Utilization of International Space Station as a National Laboratory

Plus

- *(Sub-Interagency Policy Committee for Dual Use Research of Concern)*
- *(National Science Advisory Board for Biosecurity)*
- *(Interagency Microbial Forensics Advisory Board)*
- *(Federal Experts Security Advisory Panel)*
- *(Interagency Biorisk Management Working Group)*

Interagency Research Activities & Coordination

- ARM Southern Great Plains – NASA, NOAA
 - Climate & Earth System Modeling – NSF, USDA
 - Sea Ice - NASA, NSF, international interest
 - North Slope Carbon Fluxes – international, NASA
 - GOAmazon - Brazil, NSF, NASA
 - AmeriFlux – NSF, USDA, NOAA, NASA
 - NGEA Arctic – NASA, IARPC
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- Plant Feedstock Genomics - USDA
 - Structural Biology – NIH, NSF
 - Radiochemistry – NIH
 - Low Dose Radiation Research – NASA, NRC
 - Computational Biology – NIH, NSF
 - Kbase - NSF