Dr. Michael Gore
Cornell University, Ithaca, NY

"On the Verge of a New Renaissance for Nutritional Genomics and High-Throughput Plant Phenotyping"

Michael Gore is an associate professor of molecular breeding and genetics for nutritional quality and international professor of plant breeding and genetics at Cornell University, where he is a member of the faculty in the Plant Breeding and Genetics Section in the School of Integrative Plant Science. Mike is also a faculty fellow in the Atkinson Center for a Sustainable Future and Cornell Institute for Food Systems. He holds a BS and MS from Virginia Tech in Blacksburg, Virginia, and a PhD from Cornell University. Before joining the faculty at Cornell, he worked as a Research Geneticist with the USDA-ARS at the Arid-Land Agricultural Research Center in Maricopa, Arizona. His expertise is in the field of quantitative genetics and genomics, especially the genetic dissection of metabolic seed traits related to nutritional quality. He also develops and applies field-based, high-throughput phenotyping tools for plant breeding and genetics research. Mike teaches two short courses at the Tucson Plant Breeding Institute in Tucson, Arizona, serves on the editorial boards of Crop Science, Theoretical and Applied Genetics, and Plant Breeding and Biotechnology, and serves as the Chair for the Plant Breeding Coordinating Committee (SCC080)—the USDA-sponsored advisory group of representatives from land grant universities. His career accomplishments in plant breeding and genetics earned him the National Association of Plant Breeders Early Career Scientist Award in 2012 and the American Society of Plant Biologists Early Career Award in 2013.

Cover image:
High-throughput phenotyping and genotyping
The CIMMYT-Obregon station captured with a multispectral camera overlaid with the fluorescent micrograph of NGS sequencing clusters.

http://blog.cimmyt.org/category/data-bioinformatics/
https://depts.washington.edu/molmicdx/mdx/tests/NGS16S.shtml

Participation:

The symposium is open to MSU faculty, staff, graduate students and undergraduates, as well as members of neighboring institutions and the community. There is no registration fee or requirement for preregistration.

NEW! Roundtable discussions:

We will be hosting four roundtable discussion sessions with the symposium speakers on the morning of the symposium. These sessions are available to students and faculty from any program who are interested in attending.
Attending the sessions is highly recommended for PBGB students.
There will be two sessions with two roundtables run concurrently, each with two of our speakers.
The sessions have limited space so sign up as early as possible.

Reception and Poster Session:

A poster session and open reception for the speakers will immediately follow the talks in the MPS atrium. Refreshments will be served. Those who wish to present a research poster (4'X 4') are invited to do so. Graduate students and faculty associated with PBGB are particularly encouraged to participate.

Please **register** for the Poster and/or Roundtable sessions using the QR-Code or at: http://tiny.cc/PBGB-Reg

Sponsorship

The PBGB program wishes to acknowledge support for the symposium from Dow AgroSciences and MSU AgBioResearch.

Interdepartmental Graduate Program in Plant Breeding, Genetics & Biotechnology

Symposium 2015

At the Forefront of Plant Breeding, Genetics and Biotechnology

Friday, December 18, 2015
Molecular Plant Sciences Building - Room 1200
12:15 PM to 7 PM

PBGB Plant Breeding, Genetics and Biotechnology
MSU AgBio Research
Dow AgroSciences

MICHIGAN STATE UNIVERSITY

Contact Information:

Dr. Amy Iezzoni
Faculty Advisor
iezzoni@msu.edu
(517) 353 -0391

Dr. Eric Olson
Faculty Advisor
eolson@msu.edu
(517)-353-0142

Dr. David Douches
Director - Plant Breeding, Genetics and Biotechnology Program
douchesd@msu.edu

Schedule:

11:45 – 12:15
Pizza Lunch MPS atrium

12:15 – 12:30
Opening remarks – **Dr. George Smith**
Associate Director of MSU AgBioResearch

12:30 – 1:30
Dr. Ann Callahan
Appalachian Fruit Research Laboratory – USDA ARS
"'Short'-Cuts to Tree Fruit Breeding"

1:30 – 2:30
Dr. Qijian Song
Soybean Genomics and Improvement – USDA ARS
"Development of Molecular Markers and Applications to Genetics and Genomics Research of Soybean and Common Bean"

2:30 – 3:00
Coffee Break

3:00 – 4:00
Dr. Gina Brown-Guedira
Small Grains Genotyping – USDA ARS
"Genotyping wheat germplasm: from single gene MAS to genome-wide analyses and allele discovery"

4:00 – 5:00
Dr Michael Gore
Cornell University - Integrative Plant Science
*"*On the Verge of a New Renaissance for Nutritional Genomics and High-Throughput Plant Phenotyping*"*

5:00 – 7:00
Reception and Poster Session – MPS Atrium

Invited Speakers:

Dr. George Smith
Associate Director of MSU AgBioResearch

Dr. Ann Callahan
USDA-ARS Kearneysville, WV

"'Short'-Cuts to Tree Fruit Breeding"

Ann Callahan is a Research Geneticist with the Agricultural Research Service (ARS), located at the Appalachian Fruit Research Station, Kearneysville, West Virginia. She is part of the group led by Ralph Scorza focused on developing molecular approaches to aid in fruit tree breeding. This has led to the release of the genetically engineered 'HoneySweet' plum resistant to plum pox virus. Current interests are stoneless fruit and tailored tree architecture. She received a B.A. in Biology from Indiana University, and a PhD in developmental genetics from the University of Virginia. After a Postdoc with Sandy Parkinson at the University of Utah studying chemotaxis in bacteria, she took a research associate position with West Virginia University studying the role of ethylene in tomato fruit ripening with Fred Abeles. She then joined ARS in 1987.

Dr. Qijian Song
USDA-ARS Beltsville, MD

"Development of Molecular Markers and Applications to Genetics and Genomics Research of Soybean and Common Bean"

Dr. Song obtained his B. Sc in Agronomy from Huazhong Agricultural University, Wuhan, China, in 1982, M Sc. and Ph. D. in Plant Genetics and Biostatistics from Nanjing Agricultural University, Nanjing, China in 1985 and 1988, respectively. He was a full professor and the Chairman of the Department of Agronomy, Nanjing Agricultural University before he came to the US. Currently, he is a lead scientist and geneticist at the Soybean Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD.

Research involves: Discovery of genetic variants in soybean, wheat and common bean genomes; Development and application of molecular genetic markers and genomic research tools such as gene chips to identify QTL and genes controlling traits; Application of knowledge of bioinformatics, biostatistics to breeding practice, genetics and genomics research; and Development of algorithms and computer programs for the genetic analysis of large datasets containing high throughput sequences and genotyping data.

Dr. Gina Brown-Guedira
USDA-ARS North Carolina State University

"Genotyping wheat germplasm: from single gene MAS to genome-wide analyses and allele discovery"

Dr. Gina Brown-Guedira is a research geneticist at the USDA Eastern Regional Small Grains Genotyping Laboratory in Raleigh, North Carolina. The Eastern Regional Small Grain Genotyping Lab at Raleigh, NC collaborates with small grains breeding programs across the United States. The primary goals of this program include developing new molecular marker technologies; implementing effective strategies for their application in breeding for small grain crops; providing breeders the access to sophisticated and state-of-the-art molecular technologies; and maximizing the efficiency of small grain breeding programs to speed up the process of new cultivar release. Crops include soft red and white winter wheat, specialty-purpose wheat, winter barley and winter oats.
The USDA Eastern Regional Small Grains Genotyping Laboratory focuses on the following main traits for molecular genotyping: 1) Quality traits related to protein functionality, sprouting resistance, milling and baking quality in wheat; 2) Resistance to production risks, including resistance to powdery mildew, Hessian fly, *Septoria tritici* and *Stagonospora nordorum*, Fusarium head blight, and leaf, stem and stripe rust in wheat; resistance to crown rust and winter injury in oats; and, resistance to barley yellow dwarf virus in wheat and oats.

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