

Donald R. Ort

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University of Illinois at Urbana-Champaign
Departments of Plant Biology & Crop Sciences
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EDUCATION

- 1971 **Bachelor of Science in Biology**
Wake Forest University
- 1974 **Doctorate in Plant Biochemistry**
MICHIGAN STATE UNIVERSITY

PROFESSIONAL EXPERIENCE

- 1974 – 1976 **Postdoctoral Research Associate**
Purdue University
- 1976 – 1978 **Postdoctoral Research Associate**
University of Washington
- 1978 – Present **Assistant | Associate | Full Professor**
Department of Plant Biology, University of Illinois
- 1978 – 2018 **Plant Physiologist**
Global Change & Photosynthesis Research Unit, USDA/ARS
- 1986 – 1987 **Visiting Professor**
Essex University, Colchester, UK
- 1991 – Present **Professor**
Department of Crop Sciences, University of Illinois
- 1994 – 1997 **Interim Director**
School of Life Sciences, University of Illinois
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1997 – 2018 **Research Leader**
Global Change & Photosynthesis Research Unit, USDA/ARS

1999 – 2018 **Location Coordinator**
United States Department of Agriculture/Agricultural Research
Service

2002 – 2003 **Visiting Professor**
Arizona State University, Tempe, AZ

2004 – Present **Theme Leader**
Carl R. Woese Institute for Genomic Biology

2007 – 2019 **Director**
SoyFACE Global Change Research Facility, University of Illinois

2012 – Present **Deputy Director**
Realizing Increased Photosynthetic Efficiency Project
Bill & Melinda Gates Foundation

2018 - Present **Deputy Director**
Research and Development for the Center for Advanced
Bioenergy and Bioproducts Innovation.

CURRENT PROFESSIONAL ACTIVITIES

2007 – Present **Consulting Editor**
Advances in Photosynthesis and Respiration

2008 – Present **Associate Editor**
Annual Review of Plant Biology

2009 – Present **Editorial Board**
Tropical Plant Biology

2010 – Present **Editorial Board**
BioEnergy Research

2014 – Present **Associate Editor**
Plant, Cell & Environment

2014 – Present **Associate Editor**
Journal of Experimental Biology

2019 - Present

Editorial Board

Proceedings of the National Academy of Sciences

PROFESSIONAL SOCIETIES POSITIONS HELD

- 1995 – 1998 **President-Elect, President, Past President**
American Society of Plant Biologists
- 1998 – 2004 **President**
International Society of Plant Physiology
- 1998 – 2004 **President-Elect, President, Past President**
International Society for Photosynthesis Research
- 1999 – 2001 **Board of Trustees Chair**
American Society of Plant Biologists
- 2005 – 2013 **Editor-in-Chief**
Plant Physiology
- 2011 – 2014 **Chair-elect, Chair, Past Chair of the Section on Agriculture,
Food, and Renewable Resources**
American Association for the Advancement of Science
- 2013 **Co-organizer**
16th International Congress of Photosynthesis, St. Louis
- 2015 – 2019 **Annual Meeting Program Committee**
American Association for the Advancement of Science

HONORS AND AWARDS

- 1974 – 1977 **Postdoctoral Service Award**
National Institutes of Health National
- 1986 – 1987 **Sabbatical Fellowship Award**
Agricultural Research Service
- 1986 – 1989 **University Scholars Award**
University of Illinois
- 1985, 1988 – 2018 **Merit Awards**
United States Department of Agriculture

| | |
|------------------------|--|
| 1993 | Senior Midwest Area Research Scientist of the Year Award Agricultural Research Service |
| 2003 | Supergrade Scientist Agricultural Research Service |
| 2005 | ACES Service Award College of Agricultural, Consumer and Environmental Sciences, University of Illinois |
| 2006 | Team Research Award College of Agricultural, Consumer and Environmental Sciences |
| 2006 | Charles F. Kettering Award American Society of Plant Biologists |
| 2007 | Fellow American Society of Plant Biologists |
| 2009 | Fellow American Association for the Advancement of Science |
| 2010 | Robert Emerson Professor of Plant Biology & Crop Sciences University of Illinois |
| 2011 – 2013 | Distinguished Professor Fellowship Chinese Academy of Sciences |
| 2015 | Science Hall of Fame Agricultural Research Service |
| 2015, 2016, 2018, 2019 | Most Highly Cited Researcher in Plant and Animal Science Institute for Scientific Information |
| 2017 | Elected Member National Academy of Sciences |

CURRENT UNIVERSITY SERVICE

| | |
|----------------|--|
| 2007 – Present | Theme Leader and Executive Committee Member Carl R. Woese Institute of Genomic Biology |
| 2012 – Present | Associate Director Gates Foundation RIPE Project |

- 2018 - Present **Deputy Director for Research and Development**
DOE Center for Advanced Bioenergy and Bioproducts
Innovation.
- 2018 – Present **Awards Committee**
College of Liberal Arts & Sciences
- 2019 **Chemistry Department Headship Search Committee Chair**
College of Liberal Arts & Sciences

PAST UNIVERSITY SERVICE

Highlights since 1994

- 1994 – 1997 **Interdepartmental Graduate Program Chair**
Physiological & Molecular Plant Biology Program
- 1994 – 1997 **Interim Director**
School of Life Sciences
- 1997 – 1999 **Campus Budget Oversight Committee**
University of Illinois
- 1994 – 1997 **Coordinating Committee**
Beckman Institute for Advanced Science and Technology
- 2003 – 2005 **Associate Head**
Department of Plant Biology
- 2001 – 2004 **South Farms Relocation and Revitalization Committee**
College of Agricultural, Consumer and Environmental Sciences
- 2003 – 2004 **Academic Misconduct Investigation Panel Chair**
University of Illinois
- 2003 – 2006 **Fellowship Board Area IV Committee**
Graduate College
- 2006 – 2008 **Committee Member**
Critical Initiatives in Research and Scholarship Program
- 2006 – 2010 **Advisory Committee**
Department of Crop Sciences
- 2007 – 2008 **University Scholars Selection Committee**
University of Illinois

2007 – 2008 **Fellowship Board Executive Committee**
Graduate College

2010 – 2012 **Advisory Committee**
Department of Plant Biology

2014 **Director Search Committee**
School of Integrative Biology

2014 **Search Committee Chair**
Department of Plant Biology

2014 – 2017 **Advisory Committee**
Department of Plant Biology

ADVISORY AND CONSULTANT ACTIVITIES

Highlights since 2000

2001 – 2004 **Chair**
International Congress Program Committee

2002 – 2003 **Field Crops and Horticulture Panel Chair**
BARD

2004 **National Program Assessment Committee Chair**
United States Department of Agriculture, Agricultural Research
Service

2004 **Research Integrity Investigation Panel Chair**
University of Illinois

2004 – 2005, 2008 **Plant Biochemistry Panel**
NRI

2005 **Committee of Visitors**
Department of Energy, Basic Energy Sciences

2005 **Attendee**
Solar Energy Workshop
Department of Energy

2006 **Energy BioSciences Panel**
Department of Energy

2006 **Advisor**
Institute of Plant and Microbial Biology, Academia Sinica, Taipei,
Taiwan

2007 **Energy BioSciences Photosynthesis Panel**
Department of Energy

2008 **Attendee**
Carbon Cycling and Biosequestration Workshop, Washington DC
Department of Energy

2008 **Attendee**
Workshop on Next Generation Climate Change Experiment,
Washington DC Department of Energy

2008 **Organizer**
Exploring Science Needs for Predicting Organismal Responses to
Rapid Directional Environmental Change Workshop
National Science Foundation

2009 **Attendee**
Workshop on Photosynthetic Efficiency
Department of Energy

2009 **Review Committee**
Department of Biology, Wake Forest University

2009 **Consultant for a project investigating ozone impacts on rice and
wheat in East Asia**
Shanghai & Nanjing

2010 **Attendee**
Workshop on Light to Liquid
Advanced Research Projects Agency-Energy

2010 **Attendee**
Workshop “Biology for the 21st Century”
NRC

2010 – 2014 **Scientific Advisory Committee**
Danforth Plant Science Center

2012 **Attendee**
Workshop on Improving Photosynthesis
Bill & Melinda Gates Foundation

2012 – 2015 **ARPA-E Summit**
Department of Energy

2013 **Conference Organizer**
Redesigning Photosynthesis – Identifying Opportunities and Novel Ideas
Banbury Center

2013 **Co-organizer with Robert Blankenship**
International Congress of Photosynthesis

2013 **Committee of Visitors**
Department of Energy, EFRC

2013 **Co-organizer**
8th Biochemistry Symposium Mexico-USA

2013 **Attendee**
Israel Bioenergy Challenge Scientific Exchange

2014 **Attendee**
Workshop Sink Strength
Bill & Melinda Gates Foundation

2014 **Attendee**
Workshop on Energy Crop Phenotyping
Advanced Research Projects Agency-Energy

2014 - 2017 **External Advisory Committee**
ARC Centre of Excellence for Translational Photosynthesis
Australian National University

2015 **Energy BioSciences Panel**
Department of Energy

2015 **International Wheat Yield Potential Panel**

2016 **Secretary of Energy Advisory Board Task Force**

2018 **Office of Basic Energy Sciences Panel**
Department of Energy

2019 – 2022 **Scientific Advisory Committee**
Plant Resilience Institute, Michigan State University

GRADUATE STUDENTS

| Doctorate | Candidate | Current Position |
|------------------|---------------------|---|
| 1983 | Susan Flores | Friedrich Miescher Institute |
| 1984 | S. Chuan Kee | Software designer, ITC Group |
| 1988 | Gretchen Sassenrath | ARS Scientist, Stoneville, MS |
| 1989 | Patricia Grandoni | Freight Broker |
| 1990 | Adriana Ortiz | Research Associate Professor, Harvard |
| 1991 | Susan Martino-Catt | Monsanto Company |
| 1994 | Ron Hutchison | Associate Professor North Dakota State |
| 1996 | Tamara Jones | Applied Biosystems |
| 1997 | Taylor Fields | Associate Prof University of Tennessee |
| 1999 | Hong Liu | Senior Scientist, Sanofi Aventis |
| 2001 | Dawn Tucker | Research Scientist, Jewish Hospital, Denver |
| 2002 | Aleel Grennan | Assistant Editor, Plant Physiology |
| 2003 | Guoseng Wu | Postdoctoral Researcher, Univ of Wisconsin |
| 2005 | Davyd Chung | Program Analyst, NIH |
| 2010 | Elie Schwarz | Postdoctoral Researcher, Michigan State |
| 2013 | Anna Locke | USDA/ARS Scientist, NC State |
| 2014 | Matthew Siebers | Postdoctoral Researcher, CSIRO |
| 2014 | Becky Slattery | Postdoctoral Researcher, Univ of Illinois |
| 2016 | Frederick Ghandchi | HP Enterprise |

| Master's degree | Student | Current Position |
|------------------------|-----------------|--|
| 1990 | Denise Sparrow | Research Technician, Ohio State |
| 1993 | Won-Il Kim | Korean National Institute Science & Tech |
| 1994 | Vasoula Fasoula | Agricultural consultant, Georgia |
| 1995 | Yonghwa Yung | Social Worker |
| 2006 | Ping Gong | |
| 2008 | Kevin Hollis | High School teacher |
| 2013 | Pamela Hall | Science writer |

RESEARCH ASSOCIATES

| | | |
|-------------|-----------------|--|
| 1979 – 1985 | Thomas Graan | Project Scientist, Weston Corporation |
| 1980 – 1984 | Bjorn Martin | Professor, Oklahoma State University |
| 1982 – 1985 | Roger Hangarter | Professor, Indiana University |
| 1985 – 1987 | Pam Cooper | Research Associate Professor, Missouri |
| 1986 – 1991 | Robert Wise | Professor, Wisc-Oshkosh |
| 1988 – 1990 | Jeffrey Kent | Professor, Kentucky |
| 1988 – 1994 | Kevin Oxborough | Research Specialist, University of Essex |
| 1990 – 1992 | Adriana Ortiz | Research Associate Professor, Harvard |
| 1990 – 1993 | Quentin Groom | Information Technology Botanic Garden |
| 1992 – 1994 | George Byrd | Professor, Rice Univ |
| 1997 – 1999 | Eric Singaas | Professor, Univ of Minnesota Duluth |
| 1998 – 2001 | Damian Allen | Senior Scientist, Shell |

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|----------------|------------------------|---|
| 2000 – 2004 | Carl Bernacchi | USDA/ARS, Urbana, IL |
| 2002 – 2007 | Andrew Leakey | Professor, Univ of Illinois |
| 2005 – 2007 | Davyd Chung | Program Analyst, NIH, Bethesda MD |
| 2005 – 2008 | Fang Xiu | Scientist, Carver Center Univ of Illinois |
| 2005 – 2017 | Aleel Grennan | Assistant Professor, Worcester State |
| 2007 – 2010 | Jindong Sun | Scientist, Pioneer Hi-Bred, Johnston, IA |
| 2007 – 2012 | David Rosenthal | Assistant Professor, Ohio Univ |
| 2012 – 2014 | Andrew VanLoocke | Assistant Professor, Iowa State Univ |
| 2012 – 2015 | Scott Woolbright | Assistant Professor, Louisiana State |
| 2012 – 2015 | Eiji Takahashi | Worcester State University |
| 2013 – 2016 | Berkley Walker | Assistant Professor, Michigan State |
| 2013 – 2019 | Paul South | Assistant Professor, Louisiana State |
| 2014 – 2017 | Michell Thomey | Postdoctoral Researcher, Chapman Univ |
| 2015 – Present | Ursula Ruiz-Vera | |
| 2016 – Present | Amanda Cavanagh | |
| 2016 – Present | Young Cho | |
| 2016 – Present | Rebecca Slattery (50%) | |
| 2017 – Present | Ryan Boyd | |
| 2018 – Present | Sang Yeol Kim | |
| 2018 – Present | Moonsub Lee | |
| 2018 - Present | Samantha Stutts | |
| 2018 – Present | Nam Kyu Kang (50%) | |
| 2019 – Present | Jooyeon Jeong | |

CURRENT RESEARCH INTERESTS

Over the past decade, my research interests have focused on the effect that specific environmental factors and abiotic stresses have on the photosynthetic performance of crop plants and on improving photosynthetic efficiency to increase yield. Currently, my research team of postdoctoral associates is investigating the molecular and biochemical bases of the interactions of crop plant photosynthesis with the rapid changes that are occurring in the atmosphere and on diverse strategies to improve photosynthetic efficiency.

Improving photosynthetic efficiency. The yield potential (Y_p) of a grain crop is the seed mass per unit ground area obtained under optimum growing conditions without weeds, pests and diseases. It is determined by the product of the available light energy and by the genetically determined properties: the efficiency of light capture (E_i), the efficiency of the conversion of the intercepted light into biomass (E_c) and the proportion of biomass partitioned into grain (η). Plant breeding brings η and E_i for some crops close to their theoretical maxima, leaving E_c , primarily determined by photosynthesis, as the only remaining major prospect for improving Y_p . Numerous potential routes of increasing E_c by improving photosynthetic efficiency are explored, ranging from altered canopy architecture to lower the energetic cost of photorespiration by engineering new pathways. Collectively and in combination, these changes could improve E_c and, therefore, Y_p by more than 50%. Because some changes could be achieved by transgenic technology, the time of the development of commercial cultivars could be considerably less than by conventional breeding and potentially, within 10–15 years

Impacts of increasing atmospheric carbon dioxide and tropospheric ozone on photosynthesis and productivity of soybean and corn. Corn and soybean fields are the largest ecosystem in the U.S., dominating the Midwest landscape. SoyFACE (<http://www.soyface.uiuc.edu/>), a unique open-air laboratory that uses fast-feedback control technology to treat large, fully-replicated areas with future CO_2^* , ozone, and soil moisture levels. This facility provides multi-user training and research on topics from soil microbes and gene expression to regional economies, C-cycling and crop yield. My research group and our collaborators are investigating the effects of

atmospheric change on photosynthesis and crop yield, as well as the interaction of increased atmospheric CO₂ and temperature.

Genomic ecology of global change. How ecosystems will respond to rapid changes in climate represents one of the great scientific challenges of this century. Human activities are altering the composition of our atmosphere (CO₂ and O₃), affecting the Earth's climate system (leading to elevated temperature and water deficits) and introducing invasive species—thus altering the capacity of native and agro-ecosystems to provide critical goods and services including food, fiber, fuel as well as clean air and water. Though the phenomenology of ecosystem responses to elements of global change is receiving considerable attention, it has been predominantly limited to descriptive research at the level of the individual. Illinois has established the only facility worldwide for studying the simultaneous effects of rising carbon dioxide, ozone, and drought on plants under completely open-air conditions. We are therefore in a unique position to establish an internationally unique research program to examine the effects of global atmospheric change on the transcriptome and proteome of agro-ecosystems. The aim of the “Genomic Ecology of Global Change” research theme within the Carl R. Woese Institute of Genomic Biology is to produce the scientific foundation to use information obtainable at the level of genomes and proteomes of species and communities to predict the effect of environmental changes on the structure and function of ecosystems. Mathematical modeling and bioinformatics provide the conceptual foundation and data analysis tools for making sound scientific inference. To achieve this aim, we have assembled an interdisciplinary team of eight faculty spanning molecular to ecological research, within an overarching link of mathematical modeling and informatics.

INVITED SEMINARS

Since 2000

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|---------|---|
| 04/2000 | Redox regulation of photosynthesis The Volcani Center, Bet Dagan, Israel |
| 11/2000 | Low temperature limitations on crop photosynthetic productivity: Contrasting mechanisms Wake Forest University, Winston-Salem, NC |
| 11/2001 | Plants FACE the future University of Alberta, Edmonton, Canada |
| 02/2002 | Frontiers of Science Texas A&M, College Station, TX |
| 03/2002 | SoyFACE Pioneer Hi-Bred International, Johnston, IA |
| 05/2002 | Low temperature limitations on crop photosynthetic productivity: Contrasting mechanisms University of Wisconsin, Madison, WI |
| 11/2002 | Photoinhibition in chilling-sensitive plants: An oxidant waiting to happen Arizona State University, Tempe, AZ |
| 02/2003 | A FACE study of drought and atmospheric change interactions U.S. Water Conservation Laboratory, Phoenix, AZ, Tempe, AZ |

- 04/2003 **A genetic approach to unraveling the regulation of the chloroplast ATPsynthase**
Arizona State University, Tempe, AZ 4/03
- 09/2003 **A genetic approach to unraveling the regulation of the chloroplast ATPsynthase**
University of Essex, Colchester, UK
- 05/2004 **FACE and Genomics**
Argonne National Labs, Chicago, IL
- 09/2005 **Genomic ecology of global change**
University of Illinois Research Park
- 04/2006 **Plants FACE the future: The consequences of rising atmospheric carbon dioxide and ozone on the corn/soybean agro-ecosystem of the Midwest**
Colorado State University
- 12/2006 **Genomics of Global Change**
Institute of Plant and Microbial Biology, Academia Sinica, Taipei, Taiwan
- 02/2008 **The dependence of yield on photosynthesis: Opportunities for improvement**
Michigan State University
- 03/2008 **The dependence of yield on photosynthesis: Opportunities for improvement**
Carnegie Institute Stanford University
- 11/2008 **Crops FACE the future**
Dow AgroSciences
- 02/2009 **Effects of Climate Change on Plants: Implications for Agriculture**
Purdue University
- 03/2009 **Crops FACE the Future**
Chinese Academy of Sciences, Shanghai
- 04/2010 **Agriculture and Global Change**
John Innes Institute

03/2011 **Genomics of Global Change**
Chinese Academy of Sciences, Shanghai

06/2011 **Genomics of Global Change**
University of Minnesota

08/2011 **Limits to the efficiency of crop photosynthesis: Raising the ceiling on the maximum conversion efficiency**
Botanical Institute, São Paulo, Brazil

01/2012 **Limits to the efficiency of crop photosynthesis: Closing the gap and raising the ceiling on conversion efficiency**
Danforth Plant Science Center

01/2012 **Integrity in Research and Publication: Getting Off on the Right Foot** Danforth Plant Science Center

04/2012 **Limits to the efficiency of crop photosynthesis: Raising the ceiling on the maximum conversion efficiency**
Partner Institute for Computational Biology, Shanghai, China

01/2014 **Are Crops Too Green?**
Nara Institute of Science and Technology, Nara, Japan

10/2014 **Improving photosynthetic efficiency for improved yield. Are crops too green?**
Michigan State University

10/2014 **Improving photosynthetic efficiency for improved yield. Are crops too green?**
Louisiana State University

03/2015 **Taking the heat. How will the Corn Belt fare?**
University of California, Berkeley

04/2015 **Are crops too green?**
Colorado State University

11/2015 **Food security and global change**
Delis Nature Center, WI

11/2015 **Optimizing crop canopy light energy distribution**
Washington University

10/2017 **Reducing the cost of photorespiration**
University of Maryland

- 10/2017 **Food security in a changing global environment**
Bradley University
- 01/2019 **Reducing the cost of photorespiration**
Australian National University
- 05/2019 **Redesigning photosynthetic metabolism**
University of California Berkeley
- 09/2019 **Optimizing Antenna of Crop Canopies**
Cornell University
- 10/2019 **Redesigning photosynthetic metabolism**
Colorado State University
- 11/2019 **Reducing the cost of photorespiration**
Purdue University

INVITED TALKS AT SCIENTIFIC MEETINGS AND WORKSHOPS

Since 2000

- 05/2000 **Invited Speaker and Consultant**
The physiological and biochemical basis of chilling-induced depression of photosynthesis in thermophilic crops
Crop Development for Cool and Wet Regions of Europe Workshop, Pordenone, Italy
- 08/2000 **Invited Speaker**
Chlororespiration
12th Congress of the Federation of European Societies of Plant Physiology, Budapest, Hungary
- 09/2001 **Symposium Chair and Presiding Society President**
Stress and Photosynthesis
12th International Congress on Photosynthesis, Brisbane, Australia
- 09/2002 **Invited Speaker**
Modern tools and innovative approaches
Polar Biology Workshop, Lake Tahoe, CA
- 01/2003 **Speaker, Symposium Chair and Presiding President**
Photoinhibition in chilling-sensitive plants: An oxidant waiting to happen
International Congress Plant Physiology, New Delhi, India

- 09/2003 **Symposium Chair**
Novel methods in photosynthesis research
Essex Symposium, Colchester, UK
- 11/2003 **Invited Speaker**
The SoyFACE experiment: An Overview
Agronomy Society Meetings, Denver, CO
- 03/2004 **Invited Speaker**
SoyFACE: The effects of elevated CO₂ and ozone on soybean and maize in a typical Midwest field. Short and long-term effects of elevated atmospheric CO₂ on managed ecosystems.
An international FACE workshop, Ascona, Switzerland
- 09/2004 **Invited Speaker and Symposium Organizer and Chair**
The interaction of elevated CO₂ and drought on C₄ photosynthesis (Zea mays) grown under free-air CO₂ enrichment (FACE)
13th International Congress on Photosynthesis, Montreal, Canada
- 01/2005 **Invited Speaker**
The role of pheophorbide: A oxygenase (PAO) expression and activity in the canola green seed problem
Gordon Research Conference on Temperature Stress in Plants, Ventura, CA
- 04/2005 **Invited Speaker**
SoyFACE: The effects of elevated CO₂ and ozone on soybean and maize in a typical Midwest field. Short and long-term effects of elevated atmospheric CO₂ on managed ecosystems.
Workshop on Elevated CO₂ Impacts on Wheat Growth and yield, Canberra, Australia
- 05/2005 **Invited Speaker**
The building and operation of an arable crop FACE facility
Australian Greenhouse Office, Canberra, Australia
- 07/2005 **Invited Speaker**
Elevated CO₂ does not stimulate C₄ photosynthesis directly, but impacts water relations and indirectly enhances carbon gain during drought stress in maize (Zea mays) grown under free-air CO₂ enrichment (FACE)
SEB Meeting, Barcelona, Spain
- 07/2005 **Symposium Organizer and Chair**
Photosynthesis from photons to sugar
Plant Biology 2005, Seattle, WA
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- 11/2006 **Invited Speaker**
Five years of growth of soybean at elevated CO₂ and ozone, an overview
ASA-CSSA-SSSA International Meetings, Indianapolis, IN
- 02/2007 **Invited Speaker**
Genomic Ecology of Global Change
Carl R. Woese Institute of Genomic Biology Fellows Symposium, Urbana, IL
- 03/2007 **Invited Speaker**
Crop production in the future: Aiming at the moving target of increasing carbon dioxide and variable drought
Monsanto Global Change and Agriculture Symposium, St. Louis, MO
- 07/2007 **Invited Speaker**
Can the efficiency of photosynthesis be improved? A theoretical approach. Gordon Research Conference on Plant Metabolic Engineering, Tilton, NH,
- 07/2007 **Invited Speaker**
Integrity in Research and Publication: Getting Off on the Right Foot
Plant Biology 2007, Chicago, IL
- 07/2007 **Symposium Chair**
Photosynthesis and Education
14th International Congress of Photosynthesis, Glasgow, Scotland
- 01/2008 **Invited Speaker**
The dependence of yield on photosynthesis: Opportunities for improvement
Plant Biotech Denmark, Copenhagen Denmark
- 04/2008 **Invited Speaker**
Climate Change: Consequences for Agriculture and Food Security
Environmental Horizons Sustainability Summit, University of Illinois
- 04/2008 **Invited Speaker**
Climate Change: Consequences for Agriculture and Food Security
FACING the Future, Rhinelander, WI
- 04/2008 **Invited Speaker**
Design and Performance of an Ozone Fumigation System Based on

- 12/2007 **Invited Speaker**
Photosynthesis and Yield
Syngenta Fellows Colloquium on Yield, Durham, NC
- 06/2008 **Invited Speaker**
Improving photosynthesis for increased biofuel feedstock yield
Pan American Congress on Plants and BioEnergy, Merida, Mexico
- 11/2008 **Invited Speaker**
Effects of Climate Change on Plants: Crops FACE the Future
Association of Applied Biologists, Harpenden, UK
- 12/2008 **Invited Speaker**
Food Production & Security in a Changing Global Environment
Tribal Climate Change Symposium, Milwaukee, WI
- 05/2009 **Invited Speaker**
Defining the maximum efficiency of photosynthesis
Department of Energy Office of Basic Energy Sciences "What is the Efficiency of Photosynthesis" Workshop, Washington DC
- 09/2009 **Invited Speaker**
Carbon Cycling and Biosequestration
Biological Carbon Sequestration by Photosynthetic Microbes, St Louis, MO
- 10/2010 **Invited Speaker**
Cassava about FACE
Global Cassava Partnership Meeting, Bellagio, Italy
- 12/2010 **Invited Speaker**
What is the maximum efficiency that photosynthesis can convert solar energy into biomass? Light to Liquids: Improving biological energy capture
Advanced Research Projects Agency-Energy
- 03/2011 **Invited Speaker and Panel Chair**
Agriculture FACEs Global Change
BioVision 2011, Lyon, France
- 06/2011 **Invited Speaker**
Improving photosynthetic efficiency
Gordon Research Conference on Photosynthesis, Davidson, NC
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- 06/2011 **Invited Speaker**
Limits to the efficiency of natural photosynthesis: Raising the ceiling on the maximum conversion efficiency
RDA Biotechnology Workshop, Suwon, Korea
- 06/2011 **Invited Speaker**
Limits to the efficiency of natural photosynthesis: Raising the ceiling on the maximum conversion efficiency
BES Solar Photochemistry Program Meeting, Wintergreen, VA
- 08/2011 **Organizer**
Carbon Cycling Symposium
Plant Biology 2011, Minneapolis, MN Symposium
- 09/2011 **Invited Speaker**
Crops FACE the Future: Results and Perspectives from Ten Years of the SoyFACE Experiment
Climapest, Jaguariúna, Brazi
- 09/2011 **Invited Speaker**
Too Green?
Baker Symposium, Colchester, UK
- 11/2011 **Invited Speaker**
Limits to the efficiency of natural photosynthesis: Raising the ceiling on the maximum conversion efficiency
Midwest Photosynthesis Meeting, IN
- 11/2011 **Invited Speaker**
Adapting crops to global change
XIV National Congress on Biochemistry and Molecular Biology, Campeche, Mexico
- 05/2012 **Invited Speaker**
Crops FACE the Future
IPG Symposium, Columbia MO
- 06/2012 **Invited Speaker**
Cassava about-FACE: greater than expected yield stimulation of cassava (Manihot esculenta) by future CO₂ levels
Cassava: Overcoming Challenges of Global Climate Change, Kampala, Uganda

- 09/2012 **Invited Speaker**
Redesigning photosynthesis for improved yield
Syngenta, Research Triangle, NC
- 10/2012 **Invited Speaker**
Limits to the efficiency of natural photosynthesis: Raising the ceiling on the maximum conversion efficiency
Photosynthesis: from Science to Industry Workshop,
Noordwijkerhout The Netherlands
- 10/2012 **Invited Speaker**
Crops FACE the future
Zurich-Basel Plant Science Center Symposium "Trends and Advances in Plant Biology" Zurich, Switzerland
- 01/2013 **Symposium Chair**
Bioenergy and photosynthesis
22nd Western Photosynthesis Conference, Pacific Grove, CA
- 03/2013 **Invited Speaker**
Photosynthesis: Food, Fuel & Global Change
Midwest ASPB Meeting, Chicago, IL
- 04/2013 **Invited Speaker**
Photosynthesis: Food, Fuel & Global Change: RIPE for Change
Carl R. Woese Institute of Genomic Biology Fellows Symposium,
Urbana, IL
- 05/2013 **Meeting Organizer**
Redesigning Photosynthesis – Identifying Opportunities and Novel Ideas
Banbury Center Conference, Cold Spring Harbor, NY
- 06/2013 **Invited Speaker**
More than taking the heat
BioSolar Conference, Wageningen, Netherlands
- 10/2013 **Invited Speaker and Meeting Co-organizer**
Crops FACE the future: Taking the heat
Xcaret, Mexico
- 10/2013 **Invited Speaker**
Food security in a changing global environment
Illinois Heartland Climate Science Workshop, Bloomington IL,

- 01/2014 **Invited Speaker**
Improving photosynthetic efficiency for improved crop yield
JST•CREST International Symposium – Productivity Improvement
of Plants: From Model to Crop Plants, Nara, Japan
- 02/2014 **Invited Speaker**
Improving photosynthetic efficiency for improved crop yield
Bill & Melinda Gates Foundation Cassava Sink Strength Workshop,
Germany
- 05/2014 **Invited Speaker**
*Realizing Improved Photosynthetic Efficiency for Sustainable Yield
Improvement*
Cereal Engineering Workshop, Norwich, UK
- 06/2014 **Invited Speaker**
Improving Photosynthetic Efficiency. Are crops too green?
Breeding Plants to Cope with Future Climate Change, Leeds, UK
- 07/2014 **Invited Speaker**
Heat Waves – How will the Corn Belt fare?
Plant Biology 2014, Portland, Oregon
- 08/2014 **Invited Speaker**
*Improving photosynthetic efficiency for improved yield. Are crop
canopies too green?*
Soy 2014, Minneapolis, MN
- 09/2014 **Invited Speaker**
*Improving photosynthetic efficiency for improved yield. Are crop
canopies too green?*
Institute for Sustainability, Energy, and Environment Congress,
Urbana, IL
- 03/2015 **Invited Speaker**
*Limitations on Yields in the Corn Belt. Are average 250 bushel/acre
yields possible?*
51st Annual Illinois Corn Breeders School, Urbana, IL
- 06/2015 **Invited Speaker**
*Putative chloroplast inner membrane protein BASS6 is involved in
photorespiratory metabolism*
Promics Meeting on Photorespiration – Key to Better Crops,
Rostock Germany

- 06/2015 **Invited Speaker**
Improving photosynthetic efficiency
Crop Engineering Consortium Workshop, Norwich, UK
- 07/2015 **Invited Speaker**
Are crops to green?
Essex Photosynthesis Symposium, Colchester, UK
- 07/2015 **Invited Speaker**
Raising yield potential
Agricultural Research Service Grand Challenge Meeting,
Washington DC
- 11/2015 **Invited Speaker**
Are crops to green?
Colin Wraight Memorial Symposium, Urbana, IL
- 01/2016 **Invited Speaker**
*Improving photosynthetic efficiency for improved yield: Are crop
plants to green?*
Western Photosynthesis Meeting, Devil's Thumb, Tabernash, CO
- 02/2016 **Invited Speaker**
Cassava production and global change
Cassava Source Sink Meeting, Zurich, Switzerland
- 03/2016 **Invited Speaker**
*Improving photosynthetic efficiency for improved yield: Are crop
plants to green?*
Breaking the Yield Barrier, Ein Gedi, Israel
- 08/2016 **Invited Speaker**
Lowering the cost of photorespiration
C4 Photosynthesis, Dusseldorf, Germany
- 02/2017 **Invited Speaker**
Improving photosynthetic efficiency for improved crop yield
International Conference Plant Molecular Physiology, Vienna,
Austria
- 05/2017 **Invited Speaker**
Lowering the cost of photorespiration
Gordon Research Conference CO₂ Assimilation in Plants: Genome
to Biome, Italy
- 08/2017 **Invited Speaker**
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Improving photosynthetic efficiency for improved crop yield
NAS Science Breakthroughs 2030: A Strategy for Food and
Agricultural Research. Washington D.C.

- 09/2017 **Invited Speaker**
More than taking the heat.
iSEE Congress. Urbana, IL
- 11/2017 **Invited Speaker**
Lowering the cost of photorespiration
MPIMP symposium. Potsdam, Germany
- 12/2017 **Invited Speaker**
Cassava FACE
Potsdam, Germany
- 1/2018 **Invited Speaker**
Lowering the cost of photorespiration
Western Photosynthesis Meeting. Biosphere II, AZ
- 4/2018 **Invited Speaker**
Improving Photosynthetic Efficiency for Increased Yield
National Academy of Sciences. Washington DC
- 6/2018 **Invited Speaker**
Lowering the cost of photorespiration
In Vitro Biology Meeting. St Louis, 2018
- 6/2018 **Invited Speaker**
Impacts of climate/environmental change on nutritional quality
Nutrition 2018. Boston MA
- 8/2018 **Invited Speaker**
Improving Photosynthetic Efficiency for Increased Yield
International Symposium on Synthetic Biology in Photosynthesis
Research. Shanghai, China
- 8/2018 **Invited Speaker**
Lowering the cost of photorespiration
Soy2018. Atlanta, GA
- 10/2018 **Invited Speaker**
Lowering the cost of photorespiration
KWS. Einberg, Germany
- 11/2018 **Invited Speaker**
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- 12/2018 **Invited Speaker**
Improving Photosynthetic Efficiency for Increased Yield
Plant Synthetic Biology Meeting. Clearwater, FL
- 05/2019 **Invited Speaker**
Improving Photosynthetic Efficiency for Increased Yield
15th Annual Biotechnology Symposium. Reno, NV
- 06/2019 **Invited Speaker**
Optimizing Canopies
Blankenship Symposium
- 08/2019 **Invited Speaker**
Photosynthesis and agriculture
Plant, Cell & Environment Symposium. Glasgow, Scotland
- 09/2019 **Invited Speaker**
Improving Photosynthetic Efficiency for Increased Yield
XVIII International Plant Biochemistry and Molecular Biology
Congress. Mirida, Mexico
- 11/2019 **Invited Speaker**
Redesigning Photosynthesis
Molecular Biology of Primary Producers. Helsinki, Finland
- 12/2019 **Invited Speaker**
Synthetic photosynthetic pathways
Plant Genomes, Systems Biology and Engineering. Cold Spring
Harbor, NY

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