

WASHINGTON STATE
Academy of Sciences

8TH
ANNUAL MEETING
& SYMPOSIUM
ACCELERATING
SCIENCE'S IMPACT:

TRANSLATING DISCOVERIES
INTO SOLUTIONS

Accelerating Science's Impact: **TRANSLATING DISCOVERIES INTO SOLUTIONS**

BUSINESS MEETING AGENDA

9:00 am Welcome and Introductory Remarks

Nancy Woods, President

Secretary's Report

Curt Graeber, Secretary

Treasurer's Report

Eugene Nester, Treasurer

Introduction of New Officers and Board Members

Nancy Woods, President

K-12 Activities Committee Report

Pinky Nelson, K-12 Activities Committee Chair

WSAS Action Plan Progress (President's Report)

Nancy Woods, President

Membership Committee Report and Section Meetings

Earll Murman, Membership Committee Chair (or alternate

10:00 am Section Meetings

11:15 am Adjourn

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ANNUAL MEETING PLANNING COMMITTEE

- *Chair: (Allan Konopka, President-elect)*
- George "Pinky" Nelson
- Beti Thompson
- Lee Huntsman
- Jim Cook

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SYMPOSIUM AGENDA

Symposium Chair: Dr. Allan Konopka, President-elect, WSAS

1:00 – 1:50 **KEYNOTE: Lost in Translation: Data as the Compass to Success**

Dr. Trevor Mundel, President Global Health, Gates Foundation

1:55 – 3:20 **CASE STUDIES IN TRANSLATIONAL SCIENCE**

1:55 – 2:30 **Crop Biotechnology: From Discovery to Application**

Dr. R. James Cook, Professor Emeritus, Washington State University

2:35 – 3:10 **Environmental Science and Decision Making at Hanford**

Dr. John Zachara, Battelle Fellow, Pacific Northwest National Laboratory

3:20 – 3:40 **BREAK**

3:40 – 5:30 **INTERACTIVE PANEL ON TRANSLATIONAL SCIENCE - HEALTH & DISEASE**

MODERATOR: *Dr. Vikram Jandhyala, Vice-Provost for Innovation and Executive Director of CoMotion, University of Washington*

PARTICIPANTS:

- *Dr. David Baker, Professor of Biochemistry, and Director Institute of Protein Design
University of Washington*
- *Dr. C. Anthony Blau, Professor of Medicine and Director Center for Cancer Innovation
University of Washington*
- *Dr. S. Malia Fullerton, Professor of Bioethics and Humanities
University of Washington*
- *Dr. John Latham, Chief Scientific Officer, Alder Biopharmaceuticals, Bothell, Washington*
- *Ms. Maura Little, Director of Life Sciences & Global Health Development
Washington State Department of Commerce*

5:30 – 6:15 **Induction of New Members**

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K-12 AWARDS AND RECOGNITION

**WSAS American Junior Academy of Sciences(AJAS)
Award Recipients**

Surabhi Mundada

MyGlove: Assisting Hand movements, Grip, and Tremor

Olympia High School

Mehar Nallamalli

Safety Alert Mobile Application

Capital High School

Finalists for the AJAS Award

Naveena Bontha

Richland High School

Mahalaxmi (Mahi) Elango

Interlake High School

Bilal Manzer

Camas High School

Sriharshita Musunuri

Henry M. Jackson High School

We would also like to thank our sponsors for their special support of our students.



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K-12 AWARDS AND RECOGNITION

Special recognition is given to a group of students who this year who worked together on a project called: Optical Ion Reflector: Investigating the Elastic Collision Relationship between Ions and the Chamber Walls during Nuclear Fusion in order to Enhance Plasma Density by Focusing a Plasma Beam.

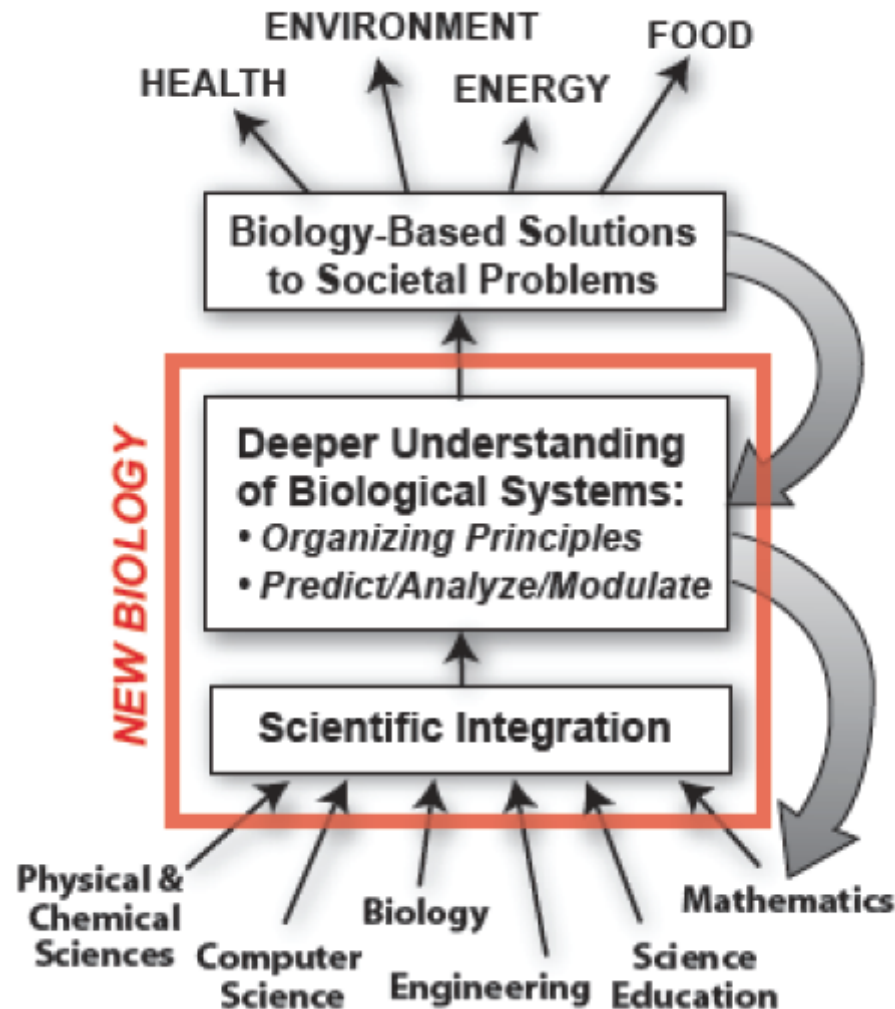
This project won 4th overall at the Washington State Science & Engineering Fair and a trip to the international fair. At the Intel International Science & Engineering Fair they won a fourth grand award in the category Physics and Astronomy.

The students involved are:

1. Daniel Christensen – Skyline High School
2. Michaela Fennel – Holy Names Academy
3. Cameron Beardsley - Granite Falls High School
4. Hyrum Bock – Thomas Jefferson HS
5. Darryl Worcester – Todd Beamer HS

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New Biology for the 21st Century. National Research Council (2009)



Keynote Speaker: Trevor Mundel

President, Global Health Program, Gates Foundation

- Bachelor's and Medical degrees:
University of the Witwatersrand, South Africa
- Ph.D. University of Chicago

Honors

- Rhodes Scholar: University of Oxford

Speaker: R. James Cook

Professor Emeritus, Washington State University

BSc: North Dakota State University

MSc: North Dakota State University

PhD: University of California, Berkley

Honors

- Honorary Doctorates
 - North Dakota State University
 - University of Turin
- Co-winner Wolf Prize in Agriculture

Speaker: John Zachara

Battelle Fellow, Pacific Northwest National Laboratory

- B.S., Chemistry, Bucknell University
- M.S., Soil/Watershed Chemistry, University of Washington
- Ph.D., Soil Chemistry, Washington State University

Honors

- E.O. Lawrence Award, 2007
- Battelle Fellow, 2010
- Fellow, American Association for the Advancement of Science

Panel Moderator: Vikram Jandhyala

**Vice Provost for Innovation, Executive Director of CoMotion,
University of Washington**

- BTech, Electrical Engineering, Indian Institute of Technology, Delhi
- M.S., Electrical Engineering, University of Illinois, Urbana-Champaign
- Ph.D., Electrical Engineering, University of Illinois, Urbana-Champaign

Honors

- Inventor Award, 2008, NASA.
- Outstanding Research Advisor Award, 2004, Department of Electrical Engineering, University of Washington.
- Senior Member Grade, 2003, Institute of Electrical and Electronics Engineers
- Elected Full Member, 2001, International Union of Radio Science (URSI) Commission B, Fields and Waves.
- CAREER Grant, 2001, National Science Foundation, ECS Division.
- Inaugural Raj Mittra Outstanding Research Award, 1998, Department of Electrical Engineering, University of Illinois at Urbana-Champaign.
- Microwave Graduate Fellowship, 1996, IEEE.

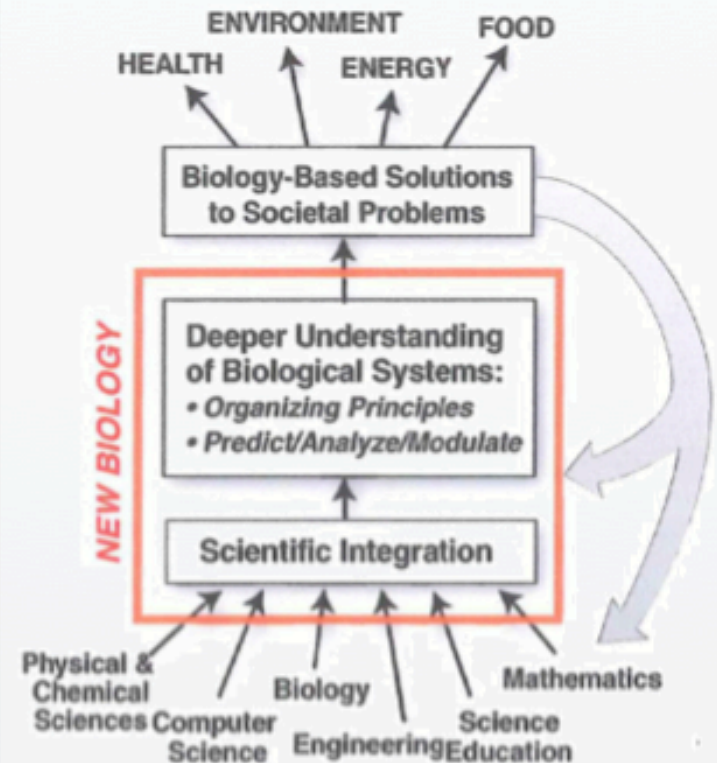
INTERACTIVE PANEL: TRANSLATIONAL SCIENCE



Moderator:

Dr. Vikram Jandhyala,
UW Vice Provost for Innovation
Executive Director of UW CoMotion

Health and disease barriers and solutions.
Investment. Talent. State Support.
Learning from other regions and
ecosystems. Our uniqueness and
strengths.



*From National Academy of Sciences,
A New Biology for the 21st Century*

WASHINGTON STATE
Academy of Sciences

PANEL PARTICIPANTS



Dr. David Baker, Professor of Biochemistry, and Director Institute of Protein Design, University of Washington



Dr. C. Anthony Blau, Professor of Medicine and Director Center for Cancer Innovation, University of Washington



Dr. S. Malia Fullerton, Professor of Bioethics and Humanities, University of Washington



Dr. John Latham, Chief Scientific Officer, Alder Biopharmaceuticals, Bothell, Washington



Ms. Maura Little, Director of Life Sciences & Global Health Development, Washington State Department of Commerce

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Panelist: David Baker

Professor of Biochemistry, University of Washington

Investigator, Howard Hughes Medical Institute

- BA 1984, Harvard University
- PhD 1989, UC Berkeley

Honors

- 2012 Biochemical Society Centenary Award
- 2009 Sackler Prize in Biophysics
- 2004 Foresight Institute Feynman Prize
- 2004 AAAS Newcomb-Cleveland prize
- 2002 International Society for Computational Biology Overton Prize
- 2000 Protein Society Young Investigator Award
- 1995 Beckman Young Investigator Award
- 1994 Packard Fellowship in Science and Engineering
- 1994 National Science Foundation Young Investigator Award

Panelist: Tony Blau

**Professor in the Division of Hematology, Dept. of Medicine &
Adjunct Professor in the Dept. of Genome Sciences
University of Washington**

- B.S., Biology, Wright State University
- M.D., The Ohio State University
- Internship, Department of Medicine, Duke University
- Residency, Department of Medicine, Duke University

Honors

- Fellowship, Division of Oncology, University of Washington
- Numerous panels of National Institutes of Health
- Leads UW Center for Cancer Innovation
- Co-Director of UW's Institute for Stem Cell and Regenerative Medicine

Panelist: Malia Fullerton
Professor of Bioethics and Humanities
University of Washington

- PhD in Human Population Genetics from the University of Oxford
- Re-trained in Ethical, Legal, and Social Implications research with a fellowship from the NIH National Human Genome Research Institute.

Honors

- Ruth L. Kirschstein NRSA Postdoctoral Fellowship, NIH F32-HG002629, "Negotiating Complexity: Common Disease and Diverse Genomes", 2002-2005

Panelist: John A. Latham

**Ph.D., Chief Scientific Officer, Co-Founder, Alder
BioPharmaceuticals**

- B.S. in Chemistry, Colorado State University
- Ph.D. in Biochemistry, Massachusetts Institute of Technology

Panelist: Maura Little

**Washington State Director of Life Science and Global Health
Development**

- B.S., University of Washington

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CLASS OF 2015 INDUCTION CEREMONY

Section 1 – Physical and Mathematical Sciences

- Cecilia M. Bitz Professor, University of Washington
- James De Yoreo Chief Scientist, Materials Synthesis and Simulations, Pacific Northwest National Laboratory
- Daniel R. Gamelin Harry and Catherine Jayne Boand Endowed Professor of Chemistry, University of Washington
- Kannan M. Krishnan Professor of Materials Science, Adjunct Professor of Physics, University of Washington

Section 2 – Engineering and Technology

- Gustavo V. Barbosa-Cánovas Professor of Food Engineering; Director for Nonthermal Processing of Food, Washington State University
- Jay Giri Director, Alstom Grid
- George “Bud” Homsy National Academy of Engineering (NAE) 2006, Affiliate Professor, University of Washington
- Ramulu Mamidala Boeing Pennell Professor of Engineering, University of Washington
- Radia J. Perlman National Academy of Engineering (NAE) 2015, Fellow, EMC Corp.
- Richard Szeliski National Academy of Engineering (NAE) 2015, Distinguished Scientist, Microsoft Research
- Yong Wang Laboratory Fellow, Pacific Northwest National Laboratory

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Section 3 – Biological Sciences

- Trisha Davis Professor and Chair, Department of Biochemistry, University of Washington
- Raymond Huey Professor Emeritus of Biology, University of Washington
- Patricia Ann Hunt Meyer Distinguished Professor, School of Molecular Sciences, Washington State University
- Janet Jansson Biological Sciences Division Director, Pacific Northwest National Laboratory

Section 4 – Medicine and Health Sciences

- Shirley Anne Alexander Beresford Professor of Epidemiology and Senior Associate Dean, School of Public Health, University of Washington
- Sue Biggins National Academy of Science (NAS) 2015, Senior Member and Associate Director, Division of Basic Sciences, Fred Hutchinson Cancer Research Center
- Dedra Stephanie Buchwald Professor, Epidemiology and Medicine, Schools of Public Health/Medicine, University of Washington
- Eric Larson National Academy of Medicine (NAM) 2007, Executive Director, Group Health Research Institute
- Alan Bruce Montgomery President and CEO, Cardeas Pharma, Inc.
- W. Sue Ritter Regents Professor, Department of Integrative Physiology and Neuroscience, Washington State University

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Section 5 –Social and Behavioral Sciences

- Anthony Greenwald Professor, Psychology, University of Washington
- Ross L. Matsueda Blumstein-Jordan Endowed Professor of Sociology,
University of Washington
- Linda Teri Professor, University of Washington

Section 1 – Physical and Mathematical Sciences

Cecilia M. Bitz

Professor, University of Washington

Citation:

For research and education contributions in climate change in the Arctic, climate modeling, and the physics of sea ice.

Section 1 – Physical and Mathematical Sciences

James De Yoreo

Professor, University of Washington
Chief Scientist, Materials Synthesis & Simulations,
Pacific Northwest National Laboratory

Citation:

For pioneering research that advanced the fundamental understanding of the molecular level mechanisms of biomineralization, and translated those principles into realizable materials technologies; and for his leadership in the materials sciences research community.

Section 1 – Physical and Mathematical Sciences

Daniel R. Gamelin

Harry and Catherine Jayne Boand Endowed

Professor of Chemistry

University of Washington

Citation:

For broad, unique, outstanding and sustained contributions to the development of inorganic nanoscience, combining elegant synthesis, spectroscopy, and theoretical electronic-structure methods to elucidate key functional properties of inorganic materials, especially their magnetic and spin-related properties.

Section 1 – Physical and Mathematical Sciences

Kannan M. Krishnan

Professor of Materials Science, Adjunct Professor
of Physics
University of Washington

Citations:

For seminal contributions to science, technology, and biomedical applications of magnetic materials including clinical translation and commercialization, and educating the next generation of materials scientists.

Section 2 – Engineering and Technology

Gustavo V. Barbosa-Cánovas

Professor of Food Engineering; Director for
Nonthermal Processing of Food
Washington State University

Citations:

For seminal contributions to science, technology, and biomedical applications of magnetic materials including clinical translation and commercialization, and educating the next generation of materials scientists.

Section 2 – Engineering and Technology

Ramulu Mamidala

**Boeing Pennell Professor of Engineering
University of Washington**

Citations:

For seminal contributions to manufacturing science and technology and quantification processes of aerospace materials, and his outstanding education of graduate students in mechanics and materials.

Section 2 – Engineering and Technology

Radia J. Perlman

National Academy of Engineering (NAE) 2015
Fellow, EMC Corporation

Citations:

For contributions to Internet routing and bridging protocols.

Section 2 – Engineering and Technology

Richard Szeliski

National National Academy of Engineering (NAE)
2015

Distinguished Scientist, Microsoft Research

Citations:

For contributions to computer vision, computer graphics, and interactive image and video rendering.

Section 2 – Engineering and Technology

Yong Wang
Laboratory Fellow
Pacific Northwest National Laboratory

Citations:

For groundbreaking research that ties fundamental kinetics studies of catalytic materials to the creative design and successful commercialization of novel microchannel reactors.

Section 3 – Biological Sciences

Trisha Davis

Professor and Chair, Department of Biochemistry
University of Washington

Citations:

For contributions to our understanding of protein-protein interactions that underlie the mechanics of cell division and the fidelity of inheritance. Defects in this vital process underlie the etiology of most cancers.

Section 3 – Biological Sciences

Raymond Huey
Professor Emeritus of Biology
University of Washington

Citations:

For foundational work in the field of evolutionary physiology including exploring patterns of physiological evolution over different time scales. He has achieved an integration of historically separate fields of physiology, ecology, and phylogenetics.

Section 3 – Biological Sciences

Patricia Ann Hunt

Meyer Distinguished Professor,
School of Molecular Sciences
Washington State University

Citations:

For pioneering research on mammalian chromosome segregation and female oogenesis has provided fundamental insight into the role of environmental exposure in leading to meiotic and chromosomal defects.

Section 3 – Biological Sciences

Janet Jansson

**Biological Sciences Division Director
Pacific Northwest National Laboratory**

Citations:

For significant contributions in microbial ecology, including application of omics to understand complex microbial communities and advancing understanding of how microbiomes are affected by external factors such as climate change and environmental exposure.

Section 4 – Health Sciences

Shirley Anne Alexander Beresford

Professor of Epidemiology and

Senior Associate Dean

School of Public Health

University of Washington

Citations:

For her leadership and research in nutrition and health disparities, including five large nutrition trials in workplaces and primary care settings. Her early research on folic acid and neural tube defects shaped U.S. nutrition policy.

Section 4 – Health Sciences

Sue Biggins

National Academy of Science (NAS) 2015
Senior Member and Associate Director,
Division of Basic Sciences
Fred Hutchinson Cancer Research Center

Citations:

For groundbreaking research on the molecular mechanisms of chromosome segregation, a process essential for cell division and frequently impaired in cancer.

Section 4 – Health Sciences

Dedra Stephanie Buchwald

Professor, Epidemiology and Medicine,
Schools of Public Health/Medicine
University of Washington

Citations:

For leading internationally recognized culturally-tailored, clinical and community-based epidemiologic research on health disparities and ground-breaking research on unexplained clinical syndromes such as chronic fatigue while directing the premier career development program for Native Researchers.

Section 4 – Health Sciences

Eric Larson

National Academy of Medicine (NAM) 2007

Executive Director

Group Health Research Institute

Citations:

For finding ways to delay or prevent Alzheimer's disease, other dementias and cognitive decline.

Section 4 – Health Sciences

Alan Bruce Montgomery
President and CEO
Cardeas Pharma, Inc.

Citations:

For pioneering developments of antimicrobials for inhalation therapy including clinical trials and successful introduction of drug candidates for the treatment of cystic fibrosis as well as other diseases.

Section 4 – Health Sciences

W. Sue Ritter

Regents Professor, Department of Integrative
Physiology and Neuroscience
Washington State University

Citations:

For outstanding research on brain control of metabolic function, Professor Ritter's work has refocused efforts to understand blood glucose regulation to the hindbrain, and is providing basic insights into life-threatening medical conditions.

Section 5 – Social and Behavioral Sciences

Anthony Greenwald
Professor, Psychology
University of Washington

Citations:

For far-reaching contributions to psychology, including theoretical and empirical breakthroughs and the invention of the most widely used and influential test of implicit cognition.

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Anthony Greenwald
Professor, Psychology
University of Washington

Citations:

For far-reaching contributions to psychology, including theoretical and empirical breakthroughs and the invention of the most widely used and influential test of implicit cognition.

Section 5 – Social and Behavioral Sciences

Ross L. Matsueda

Blumstein-Jordan Endowed Professor of Sociology
University of Washington

Citations:

For outstanding contributions to classical theories of the causes and prevention of crime, as well as elegant and methodologically innovative empirical tests of those theories.

Section 5 – Social and Behavioral Sciences

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