Program

Biochemical and Molecular Engineering XXIII: Accelerating Biotech Solutions to aid a Changing World

July 21 – 25, 2024

Royal Marine Hotel
Dublin, Ireland

Conference Co-Chairs

Michelle O'Malley
University of California at Santa Barbara, USA

Brian Pfleger
University of Wisconsin, USA

Varnika Roy
GSK, USA

Engineering Conferences International

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Engineering Conferences International (ECI) is a not-for-profit global engineering conferences program, originally established in 1962, that provides opportunities for the exploration of problems and issues of concern to engineers and scientists from many disciplines.

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Previous conferences in this series:

Biochemical Engineering
August 20-25, 1978
New England College, Henniker, New Hampshire
Conference Chairs:
W. R. Vieth, Rutgers University
A. Constantinides, Rutgers University

Biochemical Engineering II
July 13-18, 1980
New England College, Henniker, New Hampshire
Conference Chair:
A. Constantinides, Rutgers University

Biochemical Engineering III
Sept. 19-24, 1982
Santa Barbara, California
Conference Chair:
K. Venkatsubramanian, H.J. Heinz Co. and Rutgers University

Biochemical Engineering IV
Sept. 30 - Oct. 5,1984
Galway, Ireland
Conference Chairs:
H. Lim , Purdue University
Patrick Fottrell, University of Galway

Biochemical Engineering V
July 27-Aug 1,1986
New England College, Henniker, New Hampshire
Conference Chair:
W.A. Weigand, Illinois Institute Of Technology

Biochemical Engineering VI
October 2-7,1989
Santa Barbara, California
Conference Chair:
Walter E. Goldstein, ESCA Genetic Corp.

Biochemical Engineering VII
March 3-8, 1991
Santa Barbara, California
Conference Chairs:
H. Pedersen, Rutgers University
D. DiBiasio, Worcester Polytechnic

Biochemical Engineering VIII
July 11-16, 1993
Princeton, New Jersey
Conference Chairs:
Subhash Karkare, Amgen
Robert M. Kelly, North Carolina State University

Previous conferences in this series:

Biochemical Engineering IX
May 21-26,1995
Davos, Switzerland
Conference Chairs:
J. Bailey, ETH
D. Zabriskie, SmithKline Beecham

Biochemical Engineering X
May 18-23,1997
Kananaskis, Alberta, Canada
Conference Chairs:
W-S. Hu, University of Minnesota
J. Swartz, Genentech

Biochemical Engineering XI
July 25-30,1999
Salt Lake City, Utah
Conference Chairs:
George Georgiou, University of Texas
Steven Lee, Merck & Co., Inc.

Biochemical Engineering XII
June 10-15, 2001
Rohnert Park, California
Conference Chairs:
Doug Clark, University of California-Berkeley
Jay Keasling, University of California-Berkeley
David Robinson, Merck

Biochemical Engineering XIII
July 19-23, 2003
Boulder, Colorado
Conference Chairs:
Eleftherios Terry Papoutsakis, Northwestern University
Dr Weichang Zhou, Protein Design Labs

Biochemical Engineering XIV
July 10-14, 2005
Harrison Hot Springs, B.C., Canada
Conference Chairs:
William Bentley, University of Maryland
Hendrik J. Meerman, Genencor International, Inc.
Mike Betenbaugh, Johns Hopkins University
Vijay Yabannavar, Chiron

Biochemical Engineering XV
July 15-19, 2007
Quebec City, Quebec, Canada
Conference Chairs:
M. Betenbaugh, Johns Hopkins University
V. Yabannavar, Trubion Pharmaceuticals
A. Robinson, University of Delaware
E. Schaefer, BMS

Previous conferences in this series:

Biochemical Engineering XVI
July 5-9, 2009
Burlington, Vermont, USA
Conference Chairs:
A. Robinson, University of Delaware
E. Schaefer, BMS

Biochemical Engineering XVII
June 26-30, 2011
Seattle, Washington, USA
Conference Chairs:
F. Baneyz, University of Washington
C. Maranas, Penn State University
B. Junker, Merck Research

Biochemical Engineering XVIII
June 16-20, 2013
Beijing, China
Conference Chairs:
David Robinson, Merck
Tianwei Tan, Beijing University of Chemical Technology
Huimin Zhao, University of Illinois at Urbana-Champaign

Biochemical Engineering XIX
July 12-16, 2015
Puerto Vallarta, Mexico
Conference Chairs:
Theresa Good, National Science Foundation
Gargi Seth, Intas Pharmaceuticals Ltd.

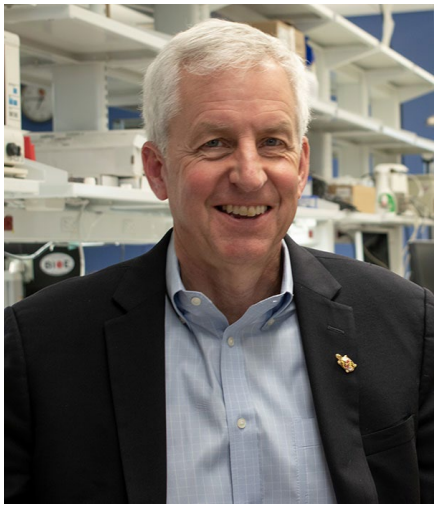
Biochemical Engineering XX
July 16-20, 2017
Newport Beach, CA, USA
Conference Chairs:
Wilfred Chen, University of Delaware, USA
Nicole Borth, Universität für Bodenkultur, Vienna, Austria
Stefanos Grammatikos, UCB Pharma, Belgium

Biochemical Engineering XXI
July 14-18, 2019
Mont Tremblant, Quebec, Canada
Conference Chairs:
Christina Chan, Michigan State University, USA
Mattheos Koffas, Rensselaer Polytechnic Institute, USA
Steffen Schaffer, Evonik Industries, Germany
Rashmi Kshirsagar, Biogen, USA

Biochemical and Molecular Engineering XXII:
The Dawn of a New Era
June 26 – 30, 2022
Cancun, Mexico
Conference Chairs:
Michael Jewett, Northwestern University
Kristala Prather, MIT
Michael Köpke, LanzaTech
Diane Hatton, AstraZeneca

Amgen BME Award Winner

William E. Bentley



William E. Bentley is the Robert E. Fischell Distinguished Chair in Engineering at the University of Maryland, where he serves as the inaugural Director of the Robert E. Fischell Institute for Biomedical Devices and Director of the Maryland Technology Enterprise Institute. Dr. Bentley obtained his B.S. and M. Eng. degrees in chemical engineering from Cornell University. After a few years as a research engineer at the International Paper Company, he decided to pursue his doctorate and obtained his Ph.D. in chemical engineering at the University of Colorado, Boulder. He has been at Maryland since 1989, originally in a joint position between Maryland's Biotechnology Institute (Center for Biosystems Research) and the College Park campus (chemical engineering). He has nearly continuously held administrative positions throughout his career at Maryland. He was Director of the Bioprocess Scaleup Facility (1994-2002) consisting of upstream pilot scale systems (up to 350L bioreactors) which facilitated many interactions with Maryland's biotechnology industry. He started the interdisciplinary Graduate Program in Bioengineering in 2002. He was Founding Chair of the Fischell Department of Bioengineering (2006), adding faculty, staff, an endowment, and a state-of-the art laboratory building to the Clark School of Engineering.

Throughout his 30+ years as a PI, he has pioneered the development of molecular biological tools for enhancing recombinant protein expression, for understanding and manipulating cell physiology especially in biomanufacturing environments, and for engineering bacterial cell-cell communication (quorum sensing) systems. More recently he has focused on the interface

between electronics and biology and has created “electrogenetics” for the actuation of genetic circuits using electronic means.

Dr. Bentley has mentored 50 PhDs, authored over 400 papers and patents and has received prestigious awards from the American Institute for Chemical Engineers (Food, Pharmaceutical and Bioengineering Division Award), the American Chemical Society (BIOT Marvin Johnson Award & D.I.C. Wang Award, joint w/AIChE), the Society for Industrial Microbiology (Charles Thom Award), the Department of Defense, and the Washington Academy of Sciences. At UMD, he was named Distinguished University Professor and received the University System Regents Award for Outstanding Research & Scholarly Activity. He is an elected fellow of the American Association for the Advancement of Science (AAAS), the American Chemical Society (ACS), and the American Institute for Medical and Biological Engineering (AIMBE). He is an elected member of the American Academy of Microbiology. He also co-founded Chesapeake PERL, a company that made proteins using caterpillar larvae as mini-bioreactors.

List of Previous Amgen Award Winners

1993 – James E. Bailey (ETH-Zurich)
1995 — Daniel I. C. Wang (MIT)
1997 — Michael Shuler (Cornell University)
1999 — Douglas Lauffenburger (MIT)
2001 — Harvey Blanch (University of California Berkeley)
2003 – -Douglas Clark (University of California Berkeley)
2005 – -Eleftherious (Terry) Papoutsakis (Northwestern University/University of Delaware)
2007 — George Georgiou (University of Texas)
2009 – Gregory Stephanopoulos (MIT)
2011 – Jens Nielsen (Chalmers University of Technology)
2013 – Sang Yup Lee (KAIST)
2015 – Wei-Shou Hu (University of Minnesota)
2017 – Jay Keasling (University of California Berkeley)
2019 – Jonathan S. Dordick (Rensselaer Polytechnic University)
2022 – Robert M. Kelly (North Carolina State University)

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Schedule

Biochemical and Molecular Engineering XXIII: Accelerating Biotech Solutions to aid a Changing World

July 21 – 25, 2024

Engineering Conferences International

Engineering Conferences International

Locations and Notes

- *Technical sessions will be in the Carlisle Suite (Ground Floor).*
- *Poster Sessions and coffee breaks will be in the Martello Suite (1st Floor).*
- *Breakfasts and lunches will be in the Dun Restaurant (Ground Floor).*
- *Dinners on Sunday and Monday will be in Hardy's Bistro (Ground Floor) and Laurels Bar (1st Floor).*
- *The gala dinner on Wednesday will be in the Carlisle Suite.*
- *The ECI on site office is the Portview Suite on the 2nd Floor.*
- *Audio, still photo and video recording by any device (e.g., cameras, cell phones, laptops, PDAs, watches) is strictly prohibited during the technical sessions, unless the author and ECI have granted prior permission.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.*
- *Emergency Contact Information: Because of privacy concerns, ECI does not collect or maintain emergency contact information for conference participants. If you would like to have this information available in case of emergency, please use the reverse side of your name badge.*

Sunday, July 21, 2024

12:30 – 14:30	Conference Check-in (Pavilion Bar)
14:30 – 14:45	Opening Remarks (Conference Chairs and ECI Liaison)
14:45 – 16:25	**Session 1: Building Sustainability in Biomanufacturing and the Workforce** ***Sponsored by Inscripta*** Chairs: Natalie Farny, Worcester Polytechnic Institute, USA Zengyi Shao, Iowa State University, USA
14:45 – 15:05	**How Biotechnology Innovation Drives Benefits to Patients and the Planet: Case Studies from Medicine Design & Manufacturing** Philip Dellorco, GSK, USA
15:05 – 15:25	**Optimized manufacturing of Adeno-associated Virus for gene therapy** Nicholas Donohue, APC Ltd, Ireland
15:25 – 15:45	**Deconstructing synthetic biology: a conceptual approach for training synthetic biologists** Ashty Karim, Northwestern University, USA
15:45 – 16:05	**Teaching Old Dogs New Tricks — Elucidating Core Design Principles to Engineer Nonconventional Yeasts and Consortia as Microbial Factories** Zengyi Shao, Iowa State University
16:05 – 16:25	**Transferring lab innovation into large scale application by thorough understanding of strains and processes** Ralf Takors, University of Stuttgart, Germany
16:25 – 17:00	Coffee Break in Poster Area
17:00 – 18:00	**Keynote** **Next generation bioproducts: Accelerating the path from innovation to commercialization** Henk Noorman, DSM, the Netherlands
18:00 – 19:30	Dinner
19:30 – 22:00	**Poster Session I and Social Hour** ***Sponsored by Astrazeneca*** ***(Authors of odd-numbered posters are asked to stay with their presentations)*** Chair: Ian Wheeldon, University of California, Riverside, USA Co-Chairs: Wilfred Chen, University of Delaware, USA Carolyn Mills, University of California, Santa Barbara, USA Ben Woolston, Northeastern University, USA

Monday, July 22, 2024

07:00 – 08:30	Breakfast
08:30 – 09:30	**Keynote** **Biochemical Engineering: Tales at the Intersection of Technology, Fundamental Research, and Application** Kelvin Lee, NIIMBL/University of Delaware, USA
09:30 – 12:30	**Session 2: In vitro models & Emerging Cell Therapies** Chairs: Laura Segatori, Rice University, USA Tim Whitehead (University of Colorado, USA
09:30 – 09:50	**NRSF plays a central role in controlling μ-opioid receptor** S. Patrick Walton, Michigan State University, USA
09:50 – 10:10	**Predicting outcomes of cardiac progenitor cell differentiation to cardiomyocytes based on integrated transcriptomics and epigenomics** Sean Palecek, University of Wisconsin – Madison, USA
10:10 – 10:30	**Programming cellular sensors with genetic control systems** Laura Segatori, Rice University, USA
10:30 – 11:00	Coffee Break in Poster Area
11:00 – 11:20	**Engineering high-precision, dynamic genetic control systems for cellular reprogramming** Katie Galloway, Massachusetts Institute of Technology, USA
11:20 – 11:40	**Optogenetic intensification of insulin secretion in pancreatic beta-cells for diabetes** Emmanuel Tzanakakis, Tufts University, USA
11:40 – 12:00	**Design of feeder-free processes for natural killer cell expansion** Samira Azarin, University of Minnesota, USA
12:00 – 13:00	**Buffet Lunch**
13:00 – 15:30	**Poster Session II with dessert** ***Sponsored by Genentech*** ***(Authors of even-numbered posters are asked to stay with their presentations)***
15:00 – 15:30	Coffee Break in Poster Area
15:30 – 17:30	**Session 3: Democratizing Biotechnology with Automation & Artificial Intelligence** ***Sponsored by Accenture*** Chairs: Carrie Eckert, Oak Ridge National Laboratory, USA Markus Mund, Sanofi-Aventis Deutschland GmbH, Germany
15:30 – 15:50	**A Journey Towards the Development of a Cloud Biofoundry** Huimin Zhao, University of Illinois at Urbana-Champaign, USA

Monday, July 22, 2024 (continued)

15:50 – 16:10	**Overcoming the Risks in Biochemical Product Development and Manufacturing Through Rapid, Genome Scale Metabolic Engineering** Richard Fox, Inscripta, Inc., USA
16:10 – 16:30	**Harnessing genome engineering and automation to engineer next-gen microbial production strains for biologics** Markus Mund, Sanofi-Aventis Deutschland GmbH, Germany
16:30 – 16:50	**Accessible DNA construction from oligonucleotide pools using Golden Gate Assembly and Data-optimized Design** Sean Johnson, New England Biolabs, USA
16:50 – 17:10	**Growing global bioeconomies through perfusion fermentation** Kerry Love, Sunflower Therapeutics PBC, USA
17:10 – 17:30	Panel Discussion
17:30 – 19:00	Dinner
19:00 – 21:00	**Special After Dinner Session (Alan Alda Center for Communicating Science)**

Tuesday, July 23, 2024

07:00 – 08:30	Breakfast
08:30 – 09:15	**Keynote** **Evolution of the Irish Biotechnology Sector** Barry Heavey, Accenture, Ireland
09:15 – 13:00	**Session 4: Advances in Protein & Metabolic Engineering** Chairs: John Kim, University of Alabama, USA Aindrila Mukhapadhay, Lawrence Berkeley National Laboratory, USA
09:15 – 09:35	**Hyperstable synthetic miniproteins as developable ligand scaffolds** Benjamin Hackel, University of Minnesota, USA
09:35 – 09:55	**MAGMA-seq enables wide mutational scanning of human antibody libraries** Tim Whitehead, University of Colorado, Boulder, USA
09:55 – 10:15	**Engineering the Redox Chemistry of Life** Han Li, University of California, Irvine, USA
10:15 – 10:35	**Glycosylation of full-length antibodies in engineered bacteria** Matt DeLisa, Cornell University, USA
10:35 – 11:05	Coffee Break in Poster Area
11:05 – 11:25	**Engineering enzymes by force: Modulating the catalytic activity of an alcohol dehydrogenase via mechanical forces applied by DNA springs** Scott Banta, Columbia University, USA
11:25 – 11:45	**Determining membrane protein binding kinetics and stability in nanodiscs for improved drug development** Anne Robinson, Carnegie Mellon University, USA
11:45 – 12:05	**Deconstructing and reconstructing polyethylene deconstruction pathways of mealworm gut microbiomes** Mark Blenner, University of Delaware, USA
12:05 – 12:25	**Production of supply-limited natural product therapeutics using engineered yeast** Jay Keasling, University of California at Berkeley, USA
12:30 – 14:00	Lunch
14:15	Meet in lobby for excursion
14:30	Excursion to Guinness Storehouse (Bus transportation provided) After the tour of the Guinness Storehouse, attendees will have a choice of returning to the hotel or being dropped off at a central point in Dublin (1358 Dame Street, near Temple Bar neighbourhood) for an evening on your own. Information on public transportation back to the hotel from Dublin will be provided. Dinner on your own

Wednesday, July 24, 2024

07:00 – 08:30	Breakfast
08:30 – 09:30	**Keynote** **Rebuilding a More Diversified Carbon Economy with Biology** Corrine Scown, Lawrence Berkeley National Laboratory, USA
09:30 – 12:00	**Session 5: Synthetic & Systems Biology I** Chairs: Chris Lawson, University of Toronto, Canada Gozde Demirer, California Institute of Technology, USA
09:30 – 09:50	**CRISPR interference libraries for genome scale functional genomics** Carrie Eckert, Oak Ridge National Laboratory, USA
09:50 – 10:10	**Optogenetic control of protein production in Pichia pastoris replaces methanol induction with light** Jose Avalos, Princeton University, USA
10:10 – 10:30	**CatPred: A comprehensive framework for deep learning in vitro enzyme kinetic parameters KCAT, KM and KI** Costas D Maranas, The Pennsylvania State University, USA
10:30 – 11:00	Coffee Break in Poster Area
11:00 – 11:20	**The role of cofactor recycling in bacterial organelles for sustainable production of biochemicals** Danielle Tullman-Ercek, Northwestern University, USA
11:20 – 11:40	**Unveiling Paclitaxel Biosynthesis: Integrating Engineered Microbial Consortia and Functional Genomics to discover a Crucial Taxane Hydroxylase** Leonardo Rios Solis, University College London, UK
11:40 – 12:00	**Strangers in a Strange Land: Challenges in the study of cellular interactions** Vassily Hatzimanikatis, EPFL, Switzerland
12:00 – 13:00	Buffet Lunch
13:00 – 17:00	**Session 6: Synthetic & Systems Biology II** Chairs: Ben Hackel, University of Minnesota, USA Han Li, University of California, Irvine, USA
13:00 – 13:20	**Highly multiplexed design of an allosteric transcription factor to sense novel ligands** Vatsan Raman, University of Wisconsin-Madison, USA
13:20 – 13:40	**Engineering and Design of Multifunctional Metalloproteinase Inhibitors** Maryam Raeeszadeh-Sarmazdeh, University of Nevada, Reno, USA
13:40 – 14:00	**Rational design of effective CRISPR-Cas antifungals** Cong Trinh, University of Tennessee, USA
14:00 – 14:20	**Bioengineering of cancer stem cells for improved disease modelling** John Kim, University of Alabama, USA

Wednesday, July 24, 2024 (continued)

14:20 – 14:40	**Unraveling the impact of climate change on Arctic diatom-cyanobacteria symbiosis and the global carbon cycle** Ranjan Srivastava, University of Connecticut, USA
14:40 – 15:15	Coffee Break in Poster Area
15:15 – 15:35	**Adventures in biomanufacturing: Mixing chemical engineering, systems biology, and metabolic engineering for a fruitful cell culture broth** Mike Betenbaugh, Johns Hopkins University, USA
15:35 – 15:55	**Into Darkness: Understanding non-coding regions of the CHO genome** Nicole Borth, BOKU University, Austria
15:55 – 16:15	**Reprogramming plant hormone receptors as biosensors and chemically-inducible genetic circuits** Ian Wheeldon, University of California, Riverside, USA
16:15 – 16:35	**SynBio in the Soil: Tools, Models, and Applications** Natalie Farny, Worcester Polytechnic Institute, USA
16:35 – 16:55	**Targeted DNA insertion in plants by CRISPR-associated transposons** Gozde Demirer, California Institute of Technology, USA
17:00 – 18:00	**Amgen Award Lecture** **Broadening the Bio⇔Electronics Bandwidth: Interesting (hopefully) applications** William Bentley, University of Maryland, USA
18:30 – 19:45	Reception with live music (Laurel's Bar)
19:45 – 22:30	Gala Dinner & Poster Awards (Carlisle Suite)

Thursday, July 25, 2024

07:00 – 08:30	Breakfast Buffet
08:30 – 09:30	**BEJ Lecture** **Hidden Figures: Gut microbes that promise efficient carbon cycling for sustainable biomanufacturing** Kevin Solomon, University of Delaware, USA
09:30 – 13:00	**Session 7: Sustainable Biomanufacturing via Microbial Systems** Chairs: Maryam Raeeszadeh-Sarmazdeh, University of Nevada, Reno, USA Leonardo Rios Solis, University College London, UK
09:30 – 09:50	**Microbial strain engineering to advance biomanufacturing** Aindrila Mukhopadhyay, Lawrence Berkeley National Laboratory, USA
09:50 – 10:10	**Trash to Treasure: Converting Nitrogen Pollutants into Industrial Chemicals** Keith Tyo, Northwestern University, USA
10:10 – 10:30	**Harnessing acetogenic bacteria for sustainable chemical production: a systems and synthetic biology approach** Benjamin Woolston, Northeastern University, USA
10:30 – 11:00	Coffee Break
11:00 – 11:20	**Engineering synthetic anaerobic consortia by division of labour for sustainable biomanufacturing** Christopher Lawson, University of Toronto, Canada
11:20 – 11:40	**Spatial and temporal control of metabolic pathways for increased biosynthesis in the emerging yeast Kluyveromyces marxianus** Nancy Da Silva, University of California, Irvine, USA
11:40 – 12:00	**Development of recombinant platforms for the upcycling of waste to protein-based biopolymers** Mattheo Koffas, Rensselaer Polytechnic Institute, USA
12:00 – 12:20	**Towards sustainable, bio-sourced polymers** Kristala Prather, Massachusetts Institute of Technology, USA
12:20 – 12:30	**Closing Remarks**
12:30	Lunch
	Departures

Biochemical and Molecular Engineering XXIII: Accelerating Biotech Solutions to aid a Changing World

POSTER PRESENTATIONS
as of 10 July 2024

Poster	Title
1	**Engineering Genetic Tools to Control Individual Microbes and Microbiota without Antibiotic Resistance Genes at a Single Strain Level** Tae Seok Moon, Washington University in St. Louis, USA
2	**Analyzing the potential of toluene \no\n-xylene monooxygenase in drug metabolism via protein engineering** Gonul Vardar-Schara, California State University Stanislaus, USA
3	**Cell culture optimization through metabolic modeling and metabolomics in cellular agriculture.** Pomaikaimaikalani Yamaguchi, Tufts University, USA
4	**Advanced manufacturing controls using process analytical technologies (PAT) to enable robust and productive drug substance processes** Kyle McElearney, Amgen, USA
5	**Quantum Mechanical Modeling of Enzyme Promiscuity: Application to Carboligases** Geoffrey Bonnanzio, Northwestern University, USA
6	**Engineering synthetic microbial consortia for carbon-efficient waste to chemicals production** Shane Orgnero, University of Toronto, Canada
7	**Influence of Endocytosis on RNA-Containing Complex Activity and Specificity** S. Patrick Walton, Michigan State University, USA
8	**Unleashing the potential of \nAureobasidium pullulans\n for biosurfactant production by strain and process engineering** Marie R.E. Dielentheis-Frenken, Institute of Applied Microbiology, RWTH Aachen University, Germany
9	**Multichromatic optogenetic control of microbial co-culture populations for chemical production** Jaewan Jang, Princeton University, USA
10	**Systems biology of isobutanol production in \nSaccharomyces cerevisiae\n reveals a general mechanism to boost chemical production, involving chromatin, mitochondria, and ATP level perturbations** Jose Montano Lopez, Princeton University, USA

Poster	Title
11	**Closed loop control of microbial population ratio of optogenetically controlled yeast-yeast consortia** Saurabh Malani, Princeton University, USA
12	**SialMAX: Maximizing Biopharmaceutical α-2,6-Sialylation in CHO Cells** Cristina Abascal Ruiz, University College Dublin, Ireland
13	**Accelerated, low ecological footprint, manufacturing platform for continuous production of biotechnological products** Natalia Danielewicz, enGenes Biotech, Austria
14	**Global Proteomics and Resource Allocation Modeling Reveals Thermodynamic Bottlenecks and Highlights Genetic and Metabolic Interventions for c. Thermocellum** Wheaton Schroeder, the Pennsylvania State University, USA
15	**CatPred: A comprehensive framework for deep learning \nin vitro\n enzyme kinetic parameters k\ncat\n, K\nM\n and K\nI** Veda Sheersh Boorla, The Pennsylvania State University, USA
16	**High-efficiency PET degradation with a two-enzyme system immobilized on magnetic nanoparticles** Qing Sun, Texas A&M University, USA
17	**Parameterizing large-scale kinetic models using an improved framework** Patrick Suthers, The Pennsylvania State Univeristy, USA
18	**Bottom-up reconstruction of synthetic pyrenoids unravels the evolution and mechanisms of carbon concentration by EPYC1 peptides** Andreas Markus Küffner, Max Planck Institute for Terrestrial Microbiology, Germany
19	**Dial-A-Sugar: Developing Actuators for Real-Time mAb Glycosylation Control in CHO Cells** Sheryl Lim, University College Dublin, Ireland
20	**Novel high-throughput screens for protein assembly reveal essential molecular interactions in bacterial organelle assembly** Carolyn Mills, University of California, Santa Barbara, USA
21	**Acetate availability determines the trade-off between growth and fatty acid chain length in chain-elongating bacteria** Ian Gois, University of Toronto, Canada
22	**Model-Driven Transfection Process Development** Ana Luiza Pinto Queiroz, APC LTD, Ireland

Poster	Title
23	**Progressive Protein Engineering for Rapid Discovery of a Detergent Protease with Enhanced Sustainability and Stain Cleaning Benefits** Thomas Graycar, International Flavors & Fragrances, USA
24	**Development of automatic and miniaturised continuous fermentation system for improvement of microbial strains** Krittanai Trisakulwattana, University College London, UK
25	**Enhancing the growth capability of a novel industrial biotechnology host, \nHalomonas\n sp. under oxygen limitation** Waritthorn Thanakarn, Department of Biochemical Engineering, University College London, UK
26	**Genome-scale metabolic models for a synthetic soil microbial community as a path for understanding community functioning** Omar Keshk, EPFL, Switzerland
27	**Scalable stem cell-based platform to produce tissue specific extracellular vesicles (EVs)** Rachel Moen, Vanderbilt University, USA
28	**Enhancing monoclonal antibody production through targeted metabolic engineering of industrial CHO cells** Kevin Ruiz-MÃ¡rquez, Vanderbilt University, USA
29	**Metabolite-regulated CRISPR activation for dynamic transcriptional control** Anthony Stohr, University of Delaware, USA
30	**Polyethylene deconstruction initiated by LDPE-oxidases from yellow mealworm gut microbiota** Ross Klauer, University of Delaware, USA
31	**Developing light-driven energy systems for cell-free protein synthesis** Blake Rasor, Max Planck Institute for Terrestrial Microbiology, Germany
32	**Enhancing Human Cell Line Engineering via Cell Line Specific Sequence Alignmnet** Eva Price, University College London, Oxford Biomedica, UK
33	**The role of IRE1 under elevated levels of palmitate on DNA damage repair and the development of chemotolerant breast cancer cells** Kevin Chen, Michigan State University, USA

Poster	Title
34	**Engineered viruses meets engineering characterization: facilitating successful recovery of quality lentiviral vectors through process and product understanding** Andrea Rayat, University College London, UK
35	**Engineered Enzymes Enable Scalable and Sustainable Nucleic Acid Synthesis** Zhe Rui, Codexis, USA
36	**Altering Degradation Pathways in Cells Under ER Stress Improves Recombinant Protein Production** R. Chauncey Splichal, Michigan State University, USA
37	**Nucleic acid exchange between \nclostridium spp.\n revealed through PacBio sequencing and rRNA-\nfluorescence in situ hybridization** John Hill, University of Delaware, USA
38	**Harnessing syntrophic microbial cocultures for carbon-neutral, supratheoretical isopropanol production** Sofia Capece, University of Delaware, USA
39	**Methanotrophic Culture Adaptation to Build an Efficient Electrobiochemical Carbon Dioxide Valorization Process** Kent Rapp, Johns Hopkins University, USA
40	**ADBANCED PRODUCTION OF L-HISTIDINE AND ITS DERIVATIVES USING COSTOMIZED CORYNEBACTERIUM GLUTAMICUM** Sung Ok Han, Korea University, South Korea
41	**Tautomer-informed biochemical Reaction Prediction for Pathway Design** Konrad Lagoda, EPFL, Switzerland
42	**In silico functional comparison of the leaf microbiome by reducing metabolic complexity** Evangelia Vayena, EPFL, Switzerland
43	**Genetic basis of dicarboxylic acid metabolism in four \nÎ²\n-proteobacteria** Allison Pearson, University of California, Berkeley; Joint BioEnergy Institute, USA
44	**Engineering Autonucleolytic Host Cells for Improved Bioprocessing of Gene Therapy Viral Vectors** Darren Nesbeth, University College London, UK
45	**Robust cyanophycin production critically limited by lackluster enzyme expression and native regulatory networks** Kevin Fitzgerald, Northwestern University, USA

Poster	Title
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49	**Acetate as a Platform for Carbon-Negative Production of Oleochemicals** Shivangi Mishra, University of Wisconsin-Madison, USA
49	**Engineering of enzymatic cascades using CodeEvolverÂ®** Oscar Alvizo, Codexis, USA
50	**In Vivo Transfer of Biological Nitrenes** Isaac Donnell, UC Berkeley, USA
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52	**Engineering enzymes for green manufacturing of noncanonical amino acids** Hannah Bachmeier, Aralez Bio, USA
53	**Rumen-inspired synthetic consortia stably convert lignocellulose to butyrate and hexanoate** Elaina Blair, University of California, Santa Barbara, USA
54	**Elucidating Cancer Metabolism With Large-Scale Kinetic Modeling** Ilias Toumpe, Ã‰cole polytechnique fÃ©dÃ©rale de Lausanne, Switzerland
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56	**A systems biology approach for the parallel generation of multiple condition-specific genome-scale metabolic models by integrating relative multi-omics data** David Liaskos, Ã‰cole Polytechnique FÃ©dÃ©rale de Lausanne (EPFL), Switzerland
57	**Computational modeling of host-parasite metabolic interactions to guide host-directed therapies** Denis Alain Henri Lucien Joly, Ã‰cole Polytechnique FÃ©dÃ©rale de Lausanne (EPFL), Switzerland
58	**Engineering Cyanobacteria for Improved Phosphorus Uptake from Wastewater** Ted Chavkin, University of Wisconsin Madison, USA

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60	**Engineering a molecular ratchet protein biosensor for affinity and specificity to novel small molecule ligands through computational modeling and design** Alison Leonard, University of Colorado Boulder, USA
61	**Reseeding and cryopreservation of cardiomyocyte progenitors during human pluripotent stem cell differentiation increases cardiomyocyte purity** Austin Feeney, University of Wisconsin-Madison, USA
62	**Developing a cell-free protein expression platform for anaerobic gut fungi** Janelle Arnold, University of California, Santa Barbara, USA
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67	**Sugar, Spice, and Everything Nice: Directed Evolution of Glucose-Dependent Enzymes via Growth Complementation of Glucose Non-Utilizing \nE. coli** Chiagoziem Ngwadom, Rice University, USA
68	**Harnessing the Oleaginous Yeast \nYarrowia lipolytica \nfor Upcycling of Depolymerized Plastic Waste** Cong Trinh, University of Tennessee, Knoxville, USA
69	**2-Ketoacid decarboxylase engineering to improve isobutanol production in \nSaccharomyces cerevisiae** Joshua Dietrich, University of Wisconsin-Madison, USA
70	**Selection of Mutants that Enhance Oil Recovery from a Nonmodel Oleaginous Yeast** Mark Blenner, University of Delaware, USA

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72	**Unraveling the impact of climate change on Arctic diatom-cyanobacteria symbiosis and the global carbon cycle** Ranjan Srivastava, University of Connecticut, USA
73	**Discovering novel enzymes for lignocellulose breakdown in anaerobic gut fungi** Shiyan Jin, University of California, Santa Barbara, USA
74	**Characterization and engineering of non-model fungal and algal systems for bioproduction, biodegradation, and biomaterials applications** Hugh Purdy, University of California, Santa Barbara, USA
75	**Genetic Engineering Strategies for Early Branching Anaerobic Gut Fungi** Sarah Seagrave, University of California, Santa Barbara, USA
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