Dennis Andersh

Executive Director, Wright State Research Institute
CEO, Wright State Applied Research Corporation

Dennis Andersh joined the Wright State Research Institute in December 2013 as the Chief Operating Officer to direct the growth of its use-inspired and applied research portfolio. His leadership role is to connect the University's research to new markets, while also leveraging the Institute's existing commercial and healthcare business. Mr. Andersh was named Chief Executive Officer of the Wright State Applied Research Corporation within six months of joining the organization, and in 2015 he added the title Executive Director, Wright State Research Institute. Mr. Andersh is the co-lead with Ohio State for the Ohio Federal Research Network that is being developed state-wide to focus University research to better support Wright Patterson AFB, NASA Glenn as well as other Federal and State Institutions state-wide.

With more than 20 years of documented leadership, management, and technical innovative successes, Mr. Andersh's expertise lies in basic research, laboratory research and development (R&D), system concept development, system and platform development, and the fielding of air, ground and space mission critical systems. He is highly respected for building collaborative partnerships of academia, industry, government, commercial, congressional, and local entities to create strategic growth across multiple new markets in the federal, state, and local government.

Mr. Andersh earned his Bachelor of Science degree in Electrical Engineering from the University of Arizona and his Master of Science degree in Electrical Engineering from the Air Force Institute of Technology. He is also an accomplished researcher, winning multiple awards from the Air Force when he directed radar research programs for the Air Force Research Laboratory (AFRL). In his spare time, Mr. Andersh has been a major supporter of STEM programs throughout the Dayton region.

Dr. Henry C. Astley
Biomimicry Research & Innovation Center, University of Akron

Henry Astley is a biomechanist and functional morphologist at the Biomimicry Research and Innovation Center at University of Akron, with dual appointments in the Biology and Polymer Science departments. Henry studies the biomechanics of animal locomotion, with a particular emphasis on the interactions between musculo-skeletal mechanics, neuromechanical control, and enviornmental interactions. Henry uses laboratory studies of animal movement combined with biomimetic robotics to understand and replicate the physical basis for locomotion in a diverse range of taxa.

Henry studies the locomotion of snakes and how to apply these insights to the design and control of snake robots. Snakes are extraordinarily capable of moving through cluttered and confined environments which are serious impediments to most other animals (and robots), in part due to their diversity of locomotor modes. By studying how snakes move, we can apply their control strategies to snake robots to enable exploration of the same challenging environments. Other research areas and interests include: power amplification during jumping, evolutionary muscle physiology, and the colonization of land by ancient animals.

Henry received a B.S. in Aerospace Engineering from Florida Institute of Technology, a B.S. and M.S. in Biology from University of Cincinnati, and received his Ph.D. in Biology from Brown University, followed by post-doctoral research at Georgia Institute of Technology.

Dr. Dayna Baumeister
Arizona State University/Biomimicry 3.8

Dr. Dayna Baumeister is the Co-founder of Biomimicry 3.8. With a devotion to applied natural history and a passion for sharing the genius of nature, Dayna has worked in the field of biomimicry with business partner Janine Benyus since 1998, traveling the world as a biomimicry thought-leader, business consultant, and professor. Together they founded the Biomimicry Guild consulting practice, The Biomimicry Institute 501c3, and most recently, Biomimicry 3.8, a B-Corp social enterprise that helps clients find innovation inspired by nature and offers the highest level of biomimicry training to professionals worldwide.

Dayna's foundational work has been critical to the biomimicry movement, establishing it as a fresh and innovative practice, as well as a philosophy to meet the world's sustainability challenges. As an educator, researcher, and design consultant, Dayna has helped more than 100 companies consult the natural world for elegant and sustainable design solutions, including Nike, General Mills, Boeing, Herman-Miller, Kohler, Seventh Generation and Procter & Gamble.

Dayna is known for her engaging presentations and her ability to empower others to use biomimicry in every aspect of their work. She has been a featured speaker at the National Science Foundation, Robert Wood Johnson Foundation, International Congress on Biodiversity of the Guyana Shield 2016, GreenBiz 2016, SXSW Eco 2015, and countless other events.
In 2008, Dayna designed (and continues to teach) the world's first Certified Biomimicry Professional Program, an in-person, two-year master-level course that trains, certifies, and connects biomimicry professionals with practitioners world-wide. She also co-designed the Biomimicry Specialist Program. Both programs are creating a new kind of professional who can employ the practice of biomimicry at its highest level. Due to the overwhelming success of these programs, Biomimicry 3.8 and Arizona State University partnered in 2015 to create an online graduate certificate program and the world's first Master's of Science in Biomimicry. Dayna serves as the co-director of ASU's Biomimicry Center and is a Professor of Practice at ASU.

From discovering sloth bears in the wild with the president of a textile company in India, to candling sea crabs out of a student's ear after snorkeling over a coral reef, Dayna's work has taken her around the world on grand adventures. She is a natural systems thinker, who brings a unique perspective to every challenge, helping others see nature as model, measure, and mentor.

Dr. Dhruv Bhate
Arizona State University

Dhruv Bhate is an Associate Professor at the Arizona State University (ASU) in The Polytechnic School, where he conducts research in the design and mechanics of Additive Manufacturing (AM) structures and materials. Prior to joining ASU, Dhruv spent 2 years at PADT, Inc, a small business in Tempe, AZ, where he led the company's R&D efforts in Additive Manufacturing. Prior to joining PADT, Dhruv spent 7 years at Intel Corporation developing several laser-based manufacturing processes, taking them from early-stage research to High-Volume-Manufacturing. He also spent a year in the automotive industry, working for India's largest car manufacturer, Tata Motors.

Dhruv has a Ph.D. in Mechanical Engineering from Purdue University (2008) where he developed constitutive and failure models for the prediction of fatigue fracture in ductile metal alloys. Prior to this, he obtained his M.S. from the University of Colorado at Boulder (2003) where he studied the phenomenon of adhesion in MEMS (Micro Electro Mechanical Systems) structures.

Dhruv's passion lies in combining theory, experimental methods and simulation to answer challenging research questions in new and effective ways, seeking inspiration from multiple disciplines.

Adina Daar
Biomimicry Facilitator and Wilderness Guide, Wildability

Adina is the founder of Wildability, a New York based Biomimicry, Research & Innovation consultancy, where she works to help groups solve challenges by exploring the many strategies and approaches present in nature. Adina is currently pursuing a Masters of Science in Biomimicry from Arizona State University and is a member of the 2016-2018 Biomimicry Professionals cohort through Biomimicry 3.8.

Adina is a wilderness guide in New York State, where she guides trips from the city to the surrounding state parks and wilderness areas. Her passion is helping people connect with and find inspiration in nature wherever it is found – from the parking lot, to the city park, to the state park and beyond.

Joyce A. Dever
NASA Glenn Research Center

Joyce Dever is Deputy Chief of the Materials and Structures Division at NASA Glenn Research Center, which is responsible for research, development, and engineering of advanced materials, structures, and mechanisms for aerospace systems in extreme environments. Joyce has over 30 years of professional experience at NASA. As a researcher, she studied durability of materials used for spacecraft external surfaces, developing laboratory exposure techniques and evaluating materials exposed to simulated and actual space flight environments. Her work contributed to the selection of materials now flying on the International Space Station and the Hubble Space Telescope. Joyce has also served as branch chief for the Durability and Protective Coatings Branch and, more recently, for the High Temperature and Smart Alloys Branch.

Joyce holds a Master of Science in Materials Science and Engineering from Case Western Reserve University and a Bachelor of Science in Chemistry from Cleveland State University. She is an author on over 65 publications and has received awards for technical accomplishments and leadership including the NASA Silver Snoopy Award, the NASA Exceptional Service Medal, the NASA Glenn Federal Women's Program Award for Supervisors, and the Cleveland Federal Executive Board's "Wings of Excellence Award."

Dr. Ali Dhinojwala
Department of Polymer Science, University of Akron

Ali Dhinojwala is H.A. Morton Professor of Polymer Science at The University of Akron. He obtained a Ph.D. in Chemical Engineering from Northwestern University and spent two years as a research scientist at University of Illinois at Urbana-Champaign. After spending one year at GE Plastics, Dr. Dhinojwala joined The University of Akron in 1997. His current research is in the areas of adhesion, friction, and wetting. His group has developed unique surface technique to study buried polymer interfaces. His recent interest is in understanding how geckos and spiders use adhesives for locomotion and prey capture. These studies have led his team to develop synthetic adhesives using aligned carbon nanotubes.

Bio-Inspired Adhesives and Coatings: Insects, spiders, and geckos use brushes of micron or nanometer-size hairs for locomotion or catching preys. Materials inspired by nature can offer solutions to design dry adhesives, self-cleaning surfaces, and coatings. Dr. Dhinojwala and his collaborators in Integrated Biosciences study the basic principles governing gecko and spider adhesion and they use these concepts to develop synthetic adhesives and coatings. He has patents in carbon nanotubebased adhesives and coatings for thermal management.

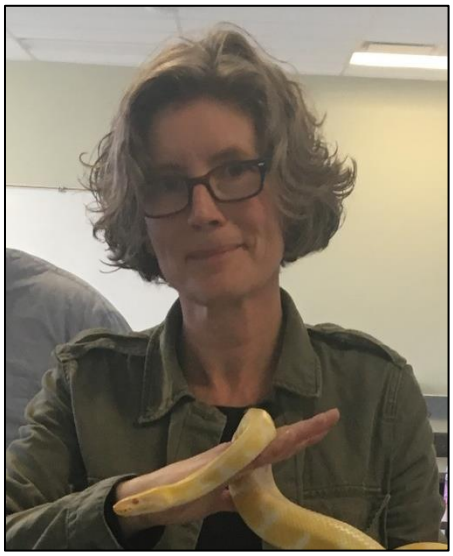
Dr. Rodger Dyson
NASA Glenn Research Center

Dr. Rodger Dyson currently serves as the Hybrid Gas Electric Propulsion Technical Lead and is the element lead for the NASA Electric Aircraft Testbed (NEAT). He also recently served as Chief Technology Officer and Vice President of Technology at Nirvana Energy Systems, a venture backed Startup Company that is commercializing his patented alpha-STREAM thermal energy conversion technology and he has recently commercialized engine technology for the emerging Unmanned Aerial Vehicle (UAV) market sector. He graduated in 1990 from Hiram College majoring in physics, computer science, and mathematics. He later completed his Doctorate at Case Western Reserve University. His special fields of interest include thermal energy conversion, machines, and power electronics for aircraft and planetary exploration.

Over his 27 year tenure at NASA he has published in the fields of high performance computing, aeroacoustics, hybrid electric propulsion, and space/terrestrial power systems. He has three issued and licensed patents and four patent applications. He was also recently featured in Wired.Com magazine, Wall Street Journal, Aviation Week, and the BBC Radio 4 Today Program for the development of a unique Venus test chamber, Glenn's Extreme Environment Rig (GEER), NASA Electric Aircraft Testbed, and for a Stirling power system concept capable of surviving on the Venus surface for over a year. He was also admitted to the Graduate Faculty at Cleveland State University, has served on Glenn's Faculty Fellowship Committee, and is currently representing Glenn as the Hybrid Electric Technical Area Team lead for the Propulsion and Power Systems Alliance. And he was recently selected to represent the U.S. on the newly formed NATO Hybrid Electric Team that is developing a technology roadmap and flight proposal for the member countries.

His recently invented technologies include: a home power system that lead to the formation of Nirvana Energy System, Inc., the DELTA engine that was licensed by HFE International, a new class of rotating cryocooler that enables a MW class superconducting motor that the Air Force may classify on the munition list, the TREES system for recycling aircraft energy that was recently selected for an IRAD project, and a turbo-acoustic fuel cell technology that lead to the formation of Strayton Engines, LLC.

Marjan Eggermont
University of Calgary



Marjan Eggermont is a Senior Instructor in Department of Mechanical and Manufacturing Engineering (Schulich School of Engineering) at the University of Calgary. She is also an artist who exhibits nationally and internationally. Marjan teaches *visualization*, *engineering sketching*, *communication*, *design history*, *bio-inspired design*, and *technology and society*. She is interested in biomimicry as a teaching tool because it allows for a great deal of creativity and "bridging" of fields: science, engineering, design, art, biology, chemistry, etc. She is currently finishing her PhD in Computational Media Design with a focus on bio-inspired information visualization.

She is a Biomimicry Institute Fellow and was a member of their Biomimicry Educational Advisory Board. She is the co-founder of Biomimicry Alberta. In 2013 she won "*Best of Biomimicry: Excellence in Biomimicry Education within a College or University"* at the Biomimicry Education Summit and Global Conference in Boston.

With co-editors Tom McKeag (San Francisco) and Norbert Hoeller (Toronto) she started bio-inspired design journal *Zygote Quarterly* (zqjournal.org). ZQ was a finalist in 2012, 2013, 2014, and 2015 for a Digital Magazine Award in their Science and Nature Magazine of the Year category.

Ariel Ekblaw
MIT Media Lab

Ariel Ekblaw is a graduate research assistant at the MIT Media Lab, where she is pursuing a PhD in Aerospace Structures in Dr. Joseph Paradiso's Responsive Environments group. Her current research includes designing, prototyping and testing aerospace structures with embedded sensor networks, and modeling zero gravity self-assembly protocols for future space architecture. As Founder and Lead of the Media Lab's Space Exploration Initiative, she coordinates space research and launch opportunities across the spectrum of science, engineering, art and design and supports collaborations on this work throughout MIT. Ariel brings an interdisciplinary approach to her research at the Media Lab, with undergraduate degrees in Physics, Mathematics and Philosophy from Yale University. Her past work experience includes blockchain product development, cloud computing analytics at Microsoft Azure, big data programming at the CERN Particle Physics Laboratory, and Mars2020 hardware development at NASA's Jet Propulsion Laboratory. Ariel’s work has been featured in *Wired*, *MIT Technology Review*, *Harvard Business Review*, IEEE proceedings, and more.

Petra Gruber
Biomimicry Research and Innovation Center (BRIC), University of Akron

Dr. Petra Gruber is an architect with a strong interest in inter- and transdisciplinary design. Apart from her professional work as an architect she holds a PhD in Biomimetics in Architecture from the Vienna University of Technology in Austria and collaborated as a research fellow at the Centre for Biomimetics at The University of Reading, UK. She taught Biomimetics in Energy Systems at the University of Applied Sciences in Villach, Austria and held lectures and workshops at universities worldwide. As a visiting professor for Architectural Design and Building Science she set up a master program in Advanced Architectural Design at the Addis Ababa University in Ethiopia.

Her research spans from projects for the European Space Agency on lunar base design informed by folding principles from nature to arts-based research on the translation of growth principles from nature into proto-architectural spatial solutions.

Since 2016 Dr. Gruber is based at the Myers sSchool of Arts and the Department of Biology for the Biomimicry Research and Innovation Center (BRIC).

Dr. Aloysius F. Hepp
Nanotech Innovations LLC

Dr. Aloysius F. Hepp was born in Pittsburgh, PA. He graduated from Carnegie Mellon University with a B.S. in Chemistry in 1978. He earned a Ph.D. in Chemistry from Massachusetts Institute of Technology in Organometallic Photochemistry in 1983 under Prof. Mark S. Wrighton, currently the Chancellor of Washington University St. Louis. He is Chief Technologist of Nanotech Innovations LLC, Oberlin, OH and Consulting Editor for Elsevier Science and Technology Books. He is on the Editorial Advisory Board of Materials Science and Engineering B, an Elsevier journal.

He was a consulting editor (2010-2011) and Editor-in-Chief of Materials Science in Semiconductor Processing (2012-2015) and a senior research scientist in the Photovoltaics and Electrochemical Systems Branch at NASA Glenn Research Center (GRC) in Cleveland, OH. He is currently Editor-in-Chief, Emeritus and Chair of the International Editorial Advisory Board. On Dec. 31, 2016, he retired from NASA Glenn Research Center after thirty years of research in the areas of energy conversion and storage, precursors for spray pyrolysis of metal sulfides and carbon nanotubes, thin film and nanomaterials for photovoltaics and batteries, materials processing of local resources for exploration and colonization of the solar system, and flight experiments for Mars and small satellites.

Dr. Hepp has 200 publications in refereed journals, conference proceedings, technical publications, and book chapters. His six patents have resulted in the formation of two companies to exploit gallium arsenide passivation (Gallia, Inc.) and low-temperature chemical vapor deposition of multi-walled carbon nanotubes (Nanotech Innovations, LLC). He has held multiple academic appointments and has served on advisory boards, for research and teaching at: Harvard University, Kent State University, University of Tulsa, University of Texas, Arlington, University at Albany, Cleveland State University, and Baldwin Wallace University. He has been quite active in his entire career in supporting diversity in educational programs and mentoring of students from diverse backgrounds. He was awarded a NASA Exceptional Achievement Medal in 1997. He was elected to Sigma Xi, is a Sequoyah Fellow of the American Indian Science and Engineering Society, and is currently a member of the Materials Research Society.

Rashmi Jha
University of Cincinnati

Dr. Rashmi Jha is an Associate Professor in Electrical Engineering and Computing Systems Department at the University of Cincinnati. She worked as an Assistant Professor and then Associate Professor in Electrical Engineering and Computer Science Department at the University of Toledo from 2008 to 2015. Before this, she worked as a Process Integration Engineer for 45 nm/32 nm High-k/Metal Gates based Advanced CMOS technologies at Semiconductor Research and Development Center, IBM, East Fishkill New York between 2006-2008. She finished her Ph.D. and M.S. in Electrical Engineering from North Carolina State University in 2006 and 2003, respectively, and B.Tech. in Electrical Engineering from Indian Institute of Technology (IIT) Kharagpur, India in 2000.

She has more than 14 years of experience in the areas of Solid State Electronic/Nanoelectronic Logic and Memory Device Fabrication, Electrical Characterization, Data Analysis, and Device Modeling. She has been granted 12 US patents and has authored/co-authored several publications in the areas of nanoelectronic devices. She has been a recipient of US Airforce Summer Faculty Fellowship Award in 2017, CAREER Award from the National Science Foundation (NSF) in 2013, IBM Faculty Award in 2012, IBM Invention Achievement Award in 2007, Materials Research Society's Graduate Student Award in 2006, Applied Materials Fellowship Award in 2005-2006, and the best student paper award nomination in IEEE International Electron Devices Meeting (IEDM) in 2005. She is the director of Microelectronics and Integrated-systems with Neuro-centric Devices (MIND) laboratory at the University of Cincinnati. Her current research interests lie in the areas of Ultra-Low Energy Nanoelectronic Devices Enabled Future Neuromorphic Computing Systems, Resistive Random Access Memory Devices, Spintronics, Emerging Nanoscale Devices Enabled Cyber-Security Systems, Logic and Memory Devices for Wearable Computing and IoT, and Energy Harvesting Devices.

Shannon Johnson
MIT Media Lab

Shannon Johnson was a Research Assistant at the Neurobiology Department of the Harvard Medical School working on high throughput drug screening for compounds to improve memory and learning. Simultaneously, she was a part-time Research Technician at the MIT Center for Bits and Atoms working on directed evolution of bacteria and algae. In 2016, she created a multi-culture *E. coli* strain, called the "United States of E. coli," as part of the Evolthon Challenge established by the Weizmann Institute to examine how various evolutionary regimes can affect the trajectory of evolution.

During her undergraduate studies at Brown University, she focused on Biochemistry and Molecular Biology and investigated the use of mesenchymal stem cell-derived extracellular vesicles to treat liver damage from acetaminophen overdose in mice. Shannon was recently studying Bioengineering and Nanotechnologies with a focus on microfluidic devices at the Harvard University Extension School but will start her Ph.D. at the MIT Media Lab in Synthetic Neurobiology, fall 2017. She is excited to begin developing tools to further illuminate the dynamic relationship between the immune system and nervous system.

Thomas Kerslake
NASA Glenn Research Center

Tom Kerslake (pronounced **Curse'**-lake) is a Power System Engineer in the Power Division of NASA Glenn Research Center. Since joining NASA in 1985, Tom has developed spacecraft electric power systems to support NASA's human and robotic exploration missions. He is currently on power system teams supporting the Orion Multi-purpose Crew Vehicle, the International Space Station, the Commercial Crew Program, Parker Solar Probe Plus, planetary surface exploration and various Solar Electric Propulsion missions. He has recently managed advanced space solar array development contracts with industrial partners. Presently, Tom is part of the Deep Space Gateway Power & Propulsion Element team at NASA, developing the solar array for this Solar Electric Propulsion mission to launch next decade. He is honored to share some of his experience with Solar Electric Propulsion as it relates to Nature-Inspired Exploration for Aerospace. He has degrees in Mechanical Engineering and is a licensed Professional engineer.

L. Danielle Koch, P. E.
Aerospace Engineer, NASA Glenn Research Center

L. Danielle Koch, P. E. has been an aerospace engineer at the NASA Glenn Research Center since 1990. She has worked to improve the performance of aircraft engine components and further our understanding of the complex flow through turbomachinery. She is serving in the Acoustics Branch, a member of a team of engineers dedicated to discovering new ways to reduce noise pollution caused by aircraft engines. Currently, she is leading a team to develop bio-inspired structures to absorb noise effectively over a wide frequency range, which might be of practical use in a wide range of aviation, space exploration, and industrial applications.

Danielle graduated with honors from Case Western Reserve University with a Bachelor's and Master's Degree in Fluid and Thermal Engineering Sciences. An inventor and author of over 30 research publications, she is also serving as a tutor in the Cleveland Federal Executive Board Tutoring Program, an engineer mentor for middle-school students in the Future City Competition, and member of the Aerospace Toastmasters Club. She has received numerous awards for her technical accomplishments, educational outreach efforts, and support of women and minorities in engineering, including the 2017 Glenn Federal Women's Program Award and the 2017 Cleveland Federal Executive Board Wings of Excellence Award.

Douglas Montjoy
University of Michigan

Douglas Montjoy is a fourth year Ph.D. Candidate in chemical engineering at the University of Michigan. He works on various applications of spiky Hedgehog particles in the laboratory of Nicholas Kotov. He has presented work at the American Institute of Chemical Engineers, as well as the American Chemical Society on conformal layer-by-layer coatings of Hedgehog Particles and is a coauthor on two peer-reviewed publications.

Jacquelyn K. Nagel, Ph.D.
James Madison University

Dr. Jacquelyn K. Nagel is an Associate Professor in the Department of Engineering at James Madison University. Dr. Nagel has eight years of diversified engineering experience, both in academia and industry, including: sensor design, bio-inspired design, instrumentation and control, manufacturing, and design for the factory floor. She has worked for Mission Control Technologies, Intel, Motoman Inc., and Kimberly-Clark Corp.

Dr. Nagel has been working in the area of bio-inspired design since 2007. Her research focuses on developing engineering design tools and methods to make biological inspiration accessible to engineering design problems, as well as instructional resources for teaching bio-inspired design. Dr. Nagel has applied her research to the areas of manufacturing, sensors, and alternative energy systems. In addition to authoring numerous publications on bio-inspired design, she has given multiple invited talks, including webinars for SWE and INCOSE members, conference presentations, and lectures to undergraduate and graduate students.

Dr. Nagel's pioneering work in bio-inspired design has been recognized nationally and internationally. In 2012 she represented IEEE-USA as the National eWeek Foundation New Faces of Engineering Award recipient, and in 2016 she received the SWE Distinguished New Engineer Award. She earned her Ph.D. in mechanical engineering from Oregon State University and her M.S. and B.S. in manufacturing engineering and electrical engineering, respectively, from the Missouri University of Science and Technology.

Jifei Ou
MIT Media Lab

Jifei Ou is a designer, researcher and PhD candidate at the MIT Media Lab, where he focuses on designing and fabricating transformable materials across scales (from μm to m). Physical materials are usually considered as static, passive, and permanent. Jifei is interested in finding ways to redesign physical materials with the characteristics of digital information, such as the ability to change shape and and to be programmable. Such new materials could be used to construct a responsive living environment, accelerate the process of design and manufacturing, and enhance our existing interaction with products. As much as his work is informed by digital technology, he is inspired in equal measure by the natural world around him. He has been leading projects that study bio-mimicry and bio-derived materials to design shape-changing packaging, garments and furniture.

An adventurer at heart, Jifei was born and raised in southwest China and has brought his design practice and scientific research to Asia, Europe and the U.S. His works have been published in academic conferences such as User Interface Software and Technology (UIST, 2013, 2016, 2017), Tangible Embodied and Embedded Interaction (TEI, 2014 & 2016) and Computer-Human Interaction (CHI, 2015 & 2016); interviewed and featured in publications such as Forbes, Discovery and Science Friday; awarded by design competitions such as A' Design Award (2016, 2017), IXDA award (2016), CORE77 design award (2015), iF design award (2015), etc. He has been organizing workshops on shape-shifting materials with researchers, high school students and artists around the world. He is also deeply involved in the manufacturing community in Shenzhen in order to facilitate the real world application of his research.

Jifei holds an MS from the MIT Media Lab and a Diploma in Design from the Offenbach University of Art and Design in Germany.

Bryan Palaszewski
NASA Glenn Research Center

Bryan Palaszewski has worked at the NASA Glenn Research Center at Lewis Field since 1989. He is currently directing research on high performance propellants and atmospheric entry and conducting analyses for the NASA Office of the Chief Technologist investigating nanometer-scale propellant additives for metallized gelled fuels for many space mission applications.

Recently, he led work related to human Mars entry, descent, and landing (EDL) where supersonic retro-propulsion (rocket deceleration) is planned for the final descent to the planet's surface. He is also investigating the mining of outer planet atmospheres and the challenges and benefits for future ambitious space missions.

Another past focus of his research is in nanoparticle metal additives for gelled liquid fuels, and solid hydrogen for atomic propellants for launch vehicles and interplanetary missions. For six years, he led many studies of advanced space systems for orbital and interplanetary travel at the Jet Propulsion Laboratory, Pasadena, CA. He was also the lead propulsion subsystem engineer on the Ocean Topography Experiment (TOPEX) for three years, as well as being involved other flight projects such as the Galileo Mission to Jupiter and the Cassini Mission to Saturn.

He holds a Master of Science Degree in Mechanical Engineering from the Massachusetts Institute of Technology and a Bachelor's Degree in Mechanical Engineering from the City College of New York.

He has received the AIAA Sustained Service Award in 2004, and was chair of the AIAA Nuclear and Future Flight Propulsion Technical committee for 3 years beginning in 1997 and was also chair of this committee for the 2nd time from 2008 to 2011.

Dr. Claudia Rivera
National Autonomous University of Mexico

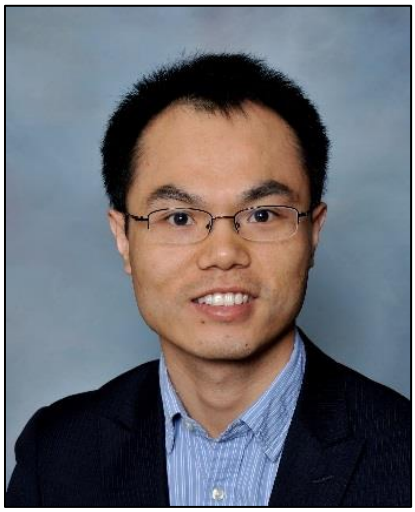
Claudia Rivera is an Associate Professor in the School of Chemistry at the National Autonomous University of Mexico. Focused on teaching and conducting research related to Earth Sciences, specifically studying Earth's atmospheric composition. Claudia is also interested on conducting research applying the Biomimicry methodology with the objective to identify and develop possible solution ideas to solve poor air quality, either with a mitigation or prevention approach.

Recently she has focused to also applying the Biomimicry methodology to study extreme environments with the objective to identify strategies developed by organisms living there and propose locally-attuned sustainable designs based on already tested strategies that are well-adapted to a place. Claudia received her Ph.D. in Earth and Space Sciences from Chalmers University of Technology, Gothenburg, Sweden.

Dr. Robert R. Romanofsky
NASA Glenn Research Center

Dr. Romanofsky has been employed by the NASA Glenn Research Center for approximately 30 years. He was detailed to NASA headquarters in 1990 as program manager for superconductivity and RF communications and subsequently served a three month collateral assignment in the White House Office of Science and Technology Policy. His expertise is in the fields of microwave device technology and antennas, cryogenic electronics and high-temperature superconductivity, and microwave applications of thin ferroelectric films. He authored chapters in *Low-Temperature Electronics* (Academic Press, 2000), the *Antenna Engineering Handbook* (McGraw-Hill, 2007), and *Ferroelectric Thin Films at Microwave Frequencies* (Research Signpost, 2010) and has over 100 technical publications. He holds seven patents, and is a recipient of NASA's Exceptional Service Medal, the Federal Executive Board "Wings of Excellence" award, Rotary National Stellar Space Award, NASA's Exceptional Technology Achievement Medal, two IR&D 100 Awards, the Federal Laboratory Consortium 2010 Award for Excellence in Technology Transfer, and the Air Force Exemplary Civilian Service Medal. Dr. Romanofsky was inducted into the Space Technology Hall of Fame in 2013. In addition, Dr. Romanofsky has been an Adjunct Professor at the Cleveland State University since 2000. From October, 2010 through September, 2011 he was detailed to the National Security Space Office in Washington DC and served as acting Chief of Advanced Concepts. Dr. Romanofsky was appointed as Senior Technologist in the Communications and Intelligent Systems Division in March, 2016.

Dr. Junliang (Julian) Tao
The University of Akron



Julian Tao is an assistant professor in the Department of Civil Engineering at the University of Akron. Dr. Tao holds a Ph.D degree in Civil Engineering from Case Western Reserve University. His research aims to explore fundamental mechanisms of and innovative countermeasures to emerging infrastructure challenges. Dr. Tao is particularly interested in addressing smart and sustainable infrastructure challenges from a nature-inspired perspective. Specific research topics include: bio-inspired smart sensors, bio-inspired smart construction technologies and bio-inspired sustainable countermeasures to nature hazards. Dr. Tao is also interested in developing and applying multi-physics, multi-scale numerical modeling techniques to study the fundamental behaviors of soils. He has authored more than 50 high quality journal and conference publications. He is the PI of a number of projects funded by university, state and federal agencies. Dr. Tao is the recipient of the prestigious NSF CAREER Award in 2017. He also receives the 2017 Gary W. Johnson Young Civil Engineer Award, sponsored by the Akron-Canton Section of the American Society of Civil Engineering (ASCE). He also serves in the editorial board of ASTM Journal of Testing and Evaluation, reviews papers for more than 20 journals and serves in committees in ASCE, TRB, SPIE and IEEE.

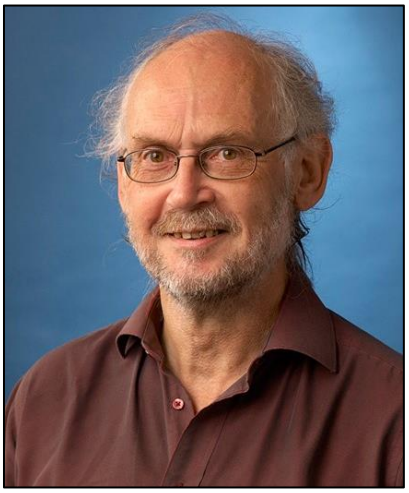
Andrew Trunek
NASA Glenn Research Center

Andrew Trunek is currently supporting the in situ resource utilization (ISRU) technology cluster under NASA Glenn Research Center's Biomimicry group. The ISRU technology cluster is exploring nature inspired approaches to the utilization of resources present at the exploration site beyond Earth. Mr. Trunek has an extensive background in silicon carbide crystal growth. He is assigned to Materials Chemistry and Physics branch at the NASA Glenn Research Center (GRC).

Mr. Trunek is currently investigating the morphology of ceramic fibers for ceramic matrix composites enabling higher temperature turbine blades for jet engines. Higher combustion temperatures results in fewer emissions and an increase in efficiency. Mr. Trunek is also working with the Virtual Institute for Nature-inspired Exploration (VINE) ISRU technology cluster to investigate passive approaches to harvesting water from Martian regolith. Traditional approaches require substantial energy input from radioisotope thermoelectric generators. A VINE inspired approach ideally would be able to harvest water in a truly passive approach requiring no external energy input other than what might be collected from solar panels.

Dr. Julian Vincent

Professor Emeritus, University of Bath



In 2008 Julian Vincent retired from the Chair of Biomimetics in the Department of Mechanical Engineering, University of Bath. His MA (zoology) was from the University of Cambridge; his PhD (insect hormones) and DSc (insect cuticle) were from the University of Sheffield. He spent most of his research career in the Zoology Department at the University of Reading, studying the mechanical design of organisms and working out ways in which aspects of the design can be used in technology. During this time he ran the Centre for Biomimetics, which he had started with Professor George Jeronimidis from the Department of Engineering in Reading. His remit in the University of Bath was to introduce concepts from biology into engineering and design, thus making the adaptive design of organisms available to advanced engineering design and control.

He has published well over 300 papers, articles and books and has given summer schools, conference lectures (mostly plenary), public lectures and research seminars around the World. His interests are very wide, covering aspects of mechanical design of plants and animals, complex fracture mechanics, texture of food, design of composite materials, use of natural materials in technology, advanced textiles, deployable structures in architecture and robotics, smart systems and structures. He is a professional Member of the Institute of Materials, which awarded him the Leslie Holliday Prize in 1980, and is a Chartered Engineer and a Fellow of the Institute of Mechanical Engineers. In 1990 he won the Prince of Wales Environmental Innovation Award. In 1997 he gave the Trueman Wood lecture at the RSA. He is the Founding President of the International Society of Bionic Engineering.

He is currently developing an ontology loosely based on the Russian system for inventive problem solving (TRIZ). Ultimately this will make biological design available to engineers without any knowledge of biology being required. It will also be able to interface with autonomous agents in a design environment, solving problems using biomimetics where appropriate.

Leon Wang
Biomimicry Translator and Facilitator

Leon Wang is a Biomimicry Professional candidate and biomimicry Master's Degree student at ASU. With a background in bio-engineering, Leon has spent 5 years working on a variety of biomimicry projects with organizations such as the ASU Biomimicry Center, the Biomimicry Institute, San Diego Zoo Global, and Biomimicry Business Intelligence. In a nutshell, Leon is all about connection, cultivation, and coaching.

As a Biomimicry Translator, he takes on many hats from storytelling and abstracting design principles from nature to aligning goals and optimizing communication between disciplines. Biomimicry is incredibly multi-disciplinary, and Leon thrives in the intersection of biology, engineering, design, and business. As an innovation catalyst, he assists in stimulating new thinking by asking hard questions, identifying gaps, and challenging the current paradigm.