

Summit 2017
 Nature-Inspired Exploration for Aerospace (NIEA)
 October 4-6, 2017
 Ohio Aerospace Institute - Cleveland, OH

Tuesday, October 3	Wednesday, October 4	Thursday, October 5	Friday, October 6
EARLY BIRD ACTIVITIES (exhibitor move-in and poster setup begins at 4pm)		III. IDEAS INTO ACTION	
	I. PERSPECTIVES ON NATURE-INSPIRED TECHNOLOGY	II. MATERIALS, STRUCTURES AND PROCESSES FOR EXTREME ENVIRONMENTS	III. IDEAS INTO ACTION
	8:00 - 8:30: CONTINENTAL BREAKFAST OAI Atrium	8:00 - 8:30: CONTINENTAL BREAKFAST OAI Atrium	8:00 - 8:30: CONTINENTAL BREAKFAST OAI Atrium
	8:30 - 9:00: WELCOME NASA, OAI and Great Lakes Biomimicry OAI Auditorium	8:30 - 8:45: Day 2 Intro T. Williams, NASA and A. Dhinojwala, University of Akron OAI Auditorium	8:30 - 8:40: Day 3 - Biomimicry: Intro to V.I.N.E. and PeTaL V. Shyam, NASA OAI Auditorium
	9:00 - 9:20: Hybrid Gas Electric Propulsion R. Dyson, NASA	8:45 - 9:05: Biomimetic Nanoscale Devices and Architectures for Brain-Inspired Computing/AI R. Jha, University of Cincinnati	8:40 - 9:20: What Might Organisms Living on Earth have to Offer Challenges in Space? D. Baumeister, Arizona State University
	9:20 - 9:45: Solar Electric Propulsion T. Kerslake, NASA	9:05 - 9:25: Snakes in Space: Biomimetic Snake Robots for Extraterrestrial Exploration H. Astley, University of Akron	9:20 - 10:20: V.I.N.E. Reports on Nature-Inspired Research & Technology
	9:45 - 10:10: Parallels in Communication & Navigation Technology - and Natural Phenomena R. Romanofsky, NASA	9:25 - 9:45: NASA's Bio-Inspired Acoustic Absorber Concept D. Koch, NASA	
	10:10 - 10:30: Materials for Extreme Environments J. Dever, NASA	9:45 - 10:05: Harnessing the Colour and UV Stability of Melanin A. Dhinojwala, University of Akron	
	10:30 - 10:40: BREAK	10:05 - 10:15: BREAK	10:20 - 10:30: BREAK
	10:40 - 11:00: A Nature-Inspired Approach to In-Situ Resource Utilization for Water Extraction on Mars A. Trunek, NASA	10:15 - 10:45: Biomimicry Practice and Systemology, Part II J. Vincent	10:30 - 11:10: V.I.N.E. Reports on Nature-Inspired Research & Technology
	11:10 - 11:30: Propulsion: Options and Issues When Considering Biomimicry B. Palaszewski, NASA	10:45 - 11:15: Bio-utilization of Fungal Mycelium for Building Materials C. Maurer, Redhouse Studio	
	11:30 - 11:55: Materials/Energy Technologies for Space Exploration & Human Presence into the Solar System: A NASA Retrospective with Ex Post Facto Adherence to Biomimicry 3.8 Life's Principles A. Hepp, Nanotech Innovation, LLC	11:15 - 11:45: Shifted Wavelength Photosynthesis for Biomass Production A. Mershin and S. Johnson, Massachusetts Institute of Technology (MIT)	11:10 - 11:45: Funding for Nature-Inspired Research & Technology: An Intro to OFRN, AFOSR and More D. Anders, Wright State Research Institute and Wright State Applied Research Corporation P. Ryan, AFRL
	12:00 - 1:30 LUNCH IN OAI SUNROOM . NIEA Discovery Space (Exhibit Area) . Poster Presentations Group A (12:30 - 1:30)	11:45 - 1:15 LUNCH IN OAI SUNROOM . NIEA Discovery Space (Exhibit Area) . Poster Presentations Group B (12:15 - 1:15)	11:45 - 1:15 LUNCH IN OAI SUNROOM . 12:00 - 12:15: Day 3/Summit Wrap-Up T. Williams and A. Dhinojwala . 12:30 - 12:45: Poster Awards Facilitator - H. Thompson, OAI . Al Hepp Award . Tom Tyrrell Award
	1:30 - 2:30: Biomimicry Practice and Systemology: Database or Ontology? J. Vincent Professor Emeritus, University of Bath	1:15 - 1:45: Multi-scale Biomimetic Nanocomposites D. Montjoy, University of Michigan 1:45 - 2:05: Biomimetic Multi-functional Lattice Materials for Space Structures D. Bhat, Phoenix Analysis & Design Technologies 2:05 - 2:25: Bioengineering with Synthetic Minimal Cells K. Adamala, University of Minnesota	1:15 - 2:45: V.I.N.E. Cluster Working Meetings Breakout Rooms: . Big Data, Artificial Intelligence, Machine Learning -- Sunroom, Section 1 . Systems Engineering and Systems Design -- Sunroom, Section 2 . Sensors, Instrumentation, NDE, Networks -- Sunroom, Section 3 . Systemology/Mobility -- Sunroom, Section 4 . Multifunctional Materials and Structures -- Presidents Room, Section 1 . Hybrid and Alternative Manufacturing -- Presidents Room, Section 2 . Information, Communication and Education (ICE) -- Industry Room 1 . Energy Conversion, Power and Propulsion -- Industry Room 2 . In Situ Resource Utilization (ISRU) -- Industry Room 3 . Synthetic Biology/Human Persistence in Space (SHIPS) -- Industry Room 4
4:00 - 7:00 - EARLY BIRD REGISTRATION - EXHIBITOR SET-UP - POSTER SET-UP (optional - available for Early Birds if desired) - VOLUNTEER ORIENTATION OAI Atrium	2:30 - 2:40: BREAK	2:25 - 2:35: BREAK	2:45 - 3:00: BREAK
	2:40 - 3:00: Systematic Design of Biologically-Inspired Engineering Solutions J. Nagel, James Madison University	2:35 - 2:55: Nature-Inspired Assembly: Biomimetic Approaches of the MIT Media Lab Space Initiative A. Ekblaw, MIT Media Lab	3:00 - 3:30: V.I.N.E. Cluster Catalyst Meeting - Industry Room #1 A. Alexander V. Ochaya H. Schilling A. Dhinojwala C. Maurer C. Thayer P. Ryan J. Nagel A. vonDeak V. Shyam C. Robinson T. Williams M. Eggermont P. Niewarowski Y. Bar-Cohen T. Hearn C. McNamara T. Peshek I. Martin A. Trunek E. Reyes J. Blankson
5:00 - 7:00 PRE-SUMMIT RECEPTION in the BIOMIMICRY CAFÉ . NIEA Discovery Space (Exhibit Area) . Pecha Kucha/Random Entry Activity: H. Thompson, OAI and R. Kwiat, ATS . Biomimicry Games: L. Wang . Poster Presentations OAI Atrium	3:00 - 3:20: Atacama Desert - Genius of Place C. Rivera, National Autonomous University of Mexico 3:20 - 3:40: Adapting Biomimicry for Designing Aerospace Materials T. McNulty, Arizona State University 3:40 - 4:00: A Bio-Inspired Design & Space Challenges Cornerstone Project M. Eggermont, University of Calgary 4:00 - 4:20: Biomimetic Design Concepts for NASA Zero-Gravity Exercise Devices P. Gruber, University of Akron 4:20 - 4:30: Day 1 Wrap-up T. Williams, NASA 4:30 - 8:00: EVENING ACTIVITY AND NETWORKING EVENT Reception/Networking Museum of the Western Reserve	2:55 - 3:05: Cilia: 3D Printing Functional Hair-Like Structures J. Ou, MIT Media Lab 3:05 - 3:25: Multi-output Biomaterial Displays with Organic Primitives V. Kan, MIT Media Lab 3:25 - 3:45: Soil Stabilization by Microbial Induced Calcite Precipitation J. Tao, University of Akron 3:35 - 3:45: Day 2 Wrap-up A. Dhinojwala, University of Akron 3:45 - 8:30: AFTERNOON ACTIVITY AND NETWORKING EVENT Group Tour: UAkron Polymers Lab and Integrated Biosciences Department Reception/Networking University of Akron	LEGEND □ Green = Meals and Networking Events □ Yellow = Agency Perspectives □ Grey = University Perspectives □ Tan = Summit-Themed Sessions (Materials, Structures, Processes for Extreme Environments) □ Blue = NASA Biomimicry/VINE Research Cluster Sessions