

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)	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. Andersh, 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	1:15 - 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
		1:45 - 2:05: Biomimetic Multi-functional Lattice Materials for Space Structures D. Bhate, Phoenix Analysis & Design Technologies	
		2:05- 2:25: Bioengineering with Synthetic Minimal Cells K. Adamala, University of Minnesota	
	2:30 - 2:40: BREAK	2:25 - 2:35: BREAK	2:45 - 3:00: BREAK
4:00 - 7:00 - EARLY BIRD REGISTRATION - EXHIBITOR SET-UP - POSTER SET-UP (optional - available for Early Birds if desired) - VOLUNTEER ORIENTATION OAI Atrium	2:40 - 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
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	2:55 - 3:05: Cillia: 3D Printing Functional Hair-Like Structures J. Ou, MIT Media Lab	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 I. Blankson
	3:20 - 3:40: Adapting Biomimicry for Designing Aerospace Materials T. McNulty, Arizona State University	3:05 - 3:25: Multi-output Biomaterial Displays with Organic Primitives V. Kan, MIT Media Lab	
	3:40 - 4:00: A Bio-Inspired Design & Space Challenges Cornerstone Project M. Eggermont, University of Calgary	3:25 - 3:45: Soil Stabilization by Microbial Induced Calcite Precipitation J.Tao, University of Akron	
	4:00 - 4:20: Biomimetic Design Concepts for NASA Zero-Gravity Exercise Devices P. Gruber, University of Akron	3:35 - 3:45: Day 2 Wrap-Up A. Dhinojwala, 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
	4:20 - 4:30: Day 1 Wrap-up T. Williams, NASA	3:45 - 8:30: AFTERNOON ACTIVITY AND NETWORKING EVENT Group Tour: UAkron Polymers Lab and Integrated Biosciences Department Reception/Networking University of Akron	
	4:30 - 8:00: EVENING ACTIVITY AND NETWORKING EVENT Reception/Networking Museum of the Western Reserve		