



Advancing Space Biotechnology through Whole-Cell Models and Functional Annotation Hybrid Workshop

Air Force Research Laboratory (AFRL) and Air Force Office of Scientific Research (AFOSR)
March 17-18, 2025
Basic Research Innovation Collaboration Center (BRICC)
4100 Fairfax Dr #450 | Arlington, Virginia

Event description: The primary objective of this workshop is to develop advanced, predictable whole-cell models of both existing and emerging biomanufacturing microorganisms that can forecast the effects on viability and yields in the space environment. The research will focus on understanding the function of genes with unknown functions, or biological dark matter, in relation to stress response, such as temperature and radiation, to improve our ability to adapt to the challenging space environment. The workshop will bring together experts in computational models, materials, space, extremophiles, and bioinformatics & synthetic biology to address the knowledge and interoperability gap in space biology and biotechnology. The workshop aims to drive innovation, improve the ability to predict and manipulate biological responses in space, and ultimately lead to more efficient and sustainable space missions.

Monday, March 17, 2025

Time	Topic	Speaker, Organization
0800-0830	Check-in and badging at BRICC	
0830-0900	Opening kickoff: Discussion of workshop purpose, goals, format, and introductions	Dr. Jennifer Talley, AFOSR
0900-0930	Level-setting Briefing: The Future of Space Domain	Dr. Andrew Younger
0930-1040	TBD	Dr. Zheng Wang, Navy Research Laboratory (NRL)
	TBD	Dr. Tiffany Hennesa, NRL
	TBD	TBD
	Space Q&A	Space Panelists
1040-1100	MORNING BREAK	
1100-1200	Breakout Sessions	
1200-1300	LUNCH	
1300-1330	Level-setting Briefing: Whole-Cell Modeling (WCM)	Dr. Christopher Bettinger, DARPA
1330-1440	TBD	Dr. Yinjie Tang, Washington University in St. Louis
	TBD	Dr. Joshua Ip, University of California Berkeley
	TBD	Dr. Eran Agmon, University of Connecticut Health Center
	WCM Q&A	WCM Panelists
1440-1500	AFTERNOON BREAK	
1500-1600	Breakout Sessions	
1600-1700	Outbriefs of Breakout Groups	
1700	End of Day	
1730	No-host social: Whino 4238 Wilson Blvd (2nd Floor) Arlington, VA 22203	

Tuesday, March 18, 2025

Time	Topic	Speaker, Organization
0800-0830	Check-in and badging at BRICC	
0830-0900	Opening kickoff: Discussion of workshop purpose, goals, format, and introductions	Dr. Jennifer Talley, AFOSR
0900-0930	Level-setting Briefing: Extremophiles	Dr. Bob Kokoska, DEVCOM Army Research Office
0930-1040	TBD	Dr. Scott Banta, Columbia University
	TBD	Dr. Robyn Barbato, Army Corps of Engineers Cold Regions Research and Engineering Laboratory
	TBD	Dr. Bonnie Baxter, Westminster University
	Extremophile Q&A	Extremophile Panelists
1040-1100	MORNING BREAK	
1100-1200	Breakout Sessions	
1200-1300	LUNCH	
1300-1330	Level-setting Briefing: Annotating Unknown Gene Function	Dr. Rene Xavier, DARPA
1330-1440	TBD	Dr. Rebecca Mickol, NRL
	TBD	Dr. Daniel Zielinski, University of California San Diego
	TBD	Dr. Paul Jensen, University of Michigan
	Annotation Q&A	Annotation Panelists
1440-1500	AFTERNOON BREAK	
1500-1600	Breakout Sessions	
1600-1700	Outbriefs of Breakout Groups	
1700	End of Day	