



**FALL**  
**WEBINAR**  
**SERIES**

September 9, 16, and 23 • [WomenInDefense.net](http://WomenInDefense.net)

Booz | Allen | Hamilton®

# DEFEND THE FUTURE. INNOVATE WITH US.



At Booz Allen, we empower you at every step in your career. Here, you can grow both personally and professionally with a community that encourages you to be yourself. The skills you'll bring to our team, coupled with the unparalleled missions you'll serve, will shift the way the world works.

Let's talk about your career and how you can lead the future.

**JOIN US. THE WORLD CAN'T WAIT. [BOOZALLEN.COM/CAREERS](https://www.boozallen.com/careers)**

# Table of Contents

WHO WE ARE	2
WELCOME LETTER	3
AGENDA	5
BIOGRAPHIES	10
WID SCHOLAR	16

## NDIA

### WHO WE ARE

Women In Defense (WID) is a proud affiliate of the National Defense Industrial Association (NDIA), the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more than 100 years, NDIA and its predecessor organizations have been at the heart of the mission by dedicating their time, expertise, and energy to ensuring our warfighters have the best training, equipment, and support. For more information, visit [WomenInDefense.net](http://WomenInDefense.net) and [NDIA.org](http://NDIA.org).

### GET INVOLVED

Learn more about WID's Chapters and how to join one at [WomenInDefense.net/Chapters](http://WomenInDefense.net/Chapters)



### NATIONAL COUNCIL

**Cathy Meyn**  
Chair

**Gretchen Larsen Idsinga**

**Karen Fray**

**Belinda Marinella**

**Laura McAleer**

**Sue Tellier**

**Patricia Ward**

**Rachel McCaffrey**

**Ann Webster**

# Women In Defense

WID strengthens the defense industrial base and workforce by promoting programming that creates and enhances opportunities for women, increasing diversity within the defense community.

### MISSION

**Powering Defense Leaders:** Provide women with a formal environment for professional growth through strategic networking, education, and professional development.

**Growing Our Replacements:** Create educational, coaching, and mentoring opportunities to encourage and enable young women to pursue STEM careers in support of national defense.



# Leidos is a proud supporter of our veterans and military families.

Let's continue to help protect America and help make the world a safer, healthier, and more efficient place together. **Join us.**

[leidos.com](https://leidos.com)

©Leidos. All rights reserved.



# Welcome

Welcome all to the Women In Defense Professional Development Lessons from the James Webb Space Telescope Program.

I've been a fan of Webb since I first heard of it. I worked at Northrop Grumman then and, for years, binged on Webb progress. Every time Scott Willoughby gave a speech, I'd be sitting in the front row, first to ask questions, and collecting swag as I went.

It wasn't just the mission, although that is amazing. We will see stars being born. We may see planets capable of hosting life. We will see the first light after big bang over 13.5 billion years back in time.

It wasn't just the organization. Can you imagine a world where three international government agencies work together cooperatively for years? Well NASA, the European Space Agency, and the Canadian Space Agency are doing just that.

What makes Webb amazing and thrilling is the magnitude of the mission combined with the magnitude of the management, engineering, and deployment. Imagine planning and managing a program when the science and engineering haven't been fully developed. Imagine the supply chain needed to support the program. Imagine testing a telescope for an environment it won't actually encounter until after deployment.

Then, imagine how this effort is literally a one-shot deal with the highest stakes imaginable. Webb is traveling one million miles. All of the groundbreaking technology must work as designed, as it was tested over and over across the country. Webb must successfully act like a "transformer" in space and deploy successfully. Never has humanity sent a deployable space telescope like Webb into space.

How do you ensure success in an environment where the stakes are so high, where almost everything for this mission practically had to be invented? One thing is certain: Every member of the team must bring their "A" game every single day. How do you motivate a team to work at their best level every single day for years?

The James Webb Space Telescope is a terrific case study to provide insights into how to consistently bring our "A" game, how to collaborate, and how to think beyond the present to the possibilities of the future. Our panelists over the next few weeks will discuss many of these questions. Each of you, in small groups, will test your creativity and problem solving against actual Webb problems that occurred along the way. We hope it'll be a great way to virtually network!

And now, we are ready to launch!

**Cathy Meyn**  
*Chair, National Council*  
Women In Defense

# Event Information

## EVENT CONTACT

**Alissa Meehan**  
Meeting Planner  
(703) 247-2540 | ameehan@NDIA.org

## SURVEY AND PARTICIPANT LIST

You will receive via email a survey and list of participants (name and organization) after the event. Please complete the survey to make our event even more successful in the future.

## SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

## HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

## EVENT CODE OF CONDUCT

NDIA's Event Code of Conduct applies to all National Defense Industrial Association (NDIA), National Training & Simulation Association (NTSA), and Women In Defense (WID) meeting-related events, whether in person at public or private facilities, online, or during virtual events. NDIA, NTSA, and WID are committed to providing a productive and welcoming environment for all participants. All participants are expected to abide by this code as well as NDIA's ethical principles and practices. Visit [NDIA.org/CodeOfConduct](https://www.ndia.org/CodeOfConduct) to review the full policy.



## Push the boundaries of possible with us.

We're looking for people who are ready to turn the impossible into a reality, every day. Sound like you? Discover how Northrop Grumman can advance your career and your life.

**NG7**  
NORTHROP GRUMMAN

[ngc.com/careers](https://ngc.com/careers)

© 2020 Northrop Grumman is committed to hiring and retaining a diverse workforce. We are proud to be an Equal Opportunity/Affirmative Action Employer, making decisions without regard to race, color, religion, creed, sex, sexual orientation, gender identity, marital status, national origin, age, veteran status, disability, or any other protected class. U.S. Citizenship is required for most positions. For our complete EEO/AA and Pay Transparency statement, please visit [www.northropgrumman.com/EEO](https://www.northropgrumman.com/EEO).

# Agenda

## SUCCESS IN COMPLEX PROGRAM MANAGEMENT

Thursday, September 9

4:00 – 4:10 pm

### WID AND SPONSOR WELCOME AND DESCRIPTION OF NETWORKING TOPIC

**Rachel McCaffrey**

Executive Director, Women In Defense (WID)

**Cathy Meyn**

Chair, National Council, WID

4:10 – 4:40 pm

### SMALL-GROUP NETWORKING SESSIONS

4:40 – 4:45 pm

### SPONSOR INTRODUCTION OF PANELISTS

**Cathy Meyn**

Chair, National Council, WID

4:45 – 5:55 pm

### FORMAL PANEL



**Dr. Jonathan Arenberg**

Chief Mission Architect, Science & Robotic Exploration, Northrop Grumman

*Moderator*

**Jacqueline Maldonado**

Department Manager, Program Management, EnerSys ABSL

**Erin Wolf**

Program Manager, Technical Lead, and Mirror Deploy Lead, James Webb Space Telescope, Ball Aerospace

**Scott Willoughby**

Vice President and Program Manager, James Webb Space Telescope

5:55 – 6:00 pm

### WRAP-UP

**Cathy Meyn**

Chair, National Council, WID



## JOIN THE CONVERSATION



@WIDNational



@WIDNational



WomenInDefense.net/LinkedIn



@WIDNational



# FEARLESS

#SHEIS<sup>ELBIT</sup>AMERICA

Elbit Systems of America is proud to support all women in defense who are committed to protecting and saving lives.



[ELBITAMERICA.COM](http://ELBITAMERICA.COM)

©2020 Elbit Systems of America, LLC.  
All rights reserved.



# SCIENCE AND ENGINEERING

Thursday, September 16

4:00 – 4:10 pm

## WID AND SPONSOR WELCOME AND DESCRIPTION OF NETWORKING TOPIC

**Rachel McCaffrey**  
Executive Director, WID

**Terri Quick**  
Senior Director, Air Force Customer Sector Team, Elbit Systems of America

4:10 – 4:40 pm

## SMALL-GROUP NETWORKING SESSIONS

4:40 – 4:45 pm

## SPONSOR INTRODUCTION OF PANELISTS

**Terri Quick**  
Senior Director, Air Force Customer Sector Team, Elbit Systems of America

4:45 – 5:55 pm

## FORMAL PANEL



**Dr. Bhavya Lal**  
Senior Advisor to the Administrator for Budget & Finance, NASA  
*Moderator*

**Dr. Christine Chen**  
Associate Astronomer, Space Telescope Science Institute

**Dr. Mark Lewis**  
Executive Director, NDIA Emerging Technologies Institute

**Dr. Amy Lo**  
Deputy Director, Vehicle Engineering Integrated Project Team, James Webb Space Telescope, Northrop Grumman

**Jim Moore**  
President and Chief Executive Officer, NeXolve

5:55 – 6:00 pm

## WRAP-UP

**Cathy Meyn**  
Chair, National Council, WID

# PLANNING FOR SUCCESS: SUPPLY CHAIN & TEST AND EVALUATION

Thursday, September 23

4:00 – 4:10 pm

## WID AND SPONSOR WELCOME AND DESCRIPTION OF NETWORKING TOPIC

Rachel McCaffrey  
Executive Director, WID

4:10 – 4:40 pm

## SMALL-GROUP NETWORKING SESSIONS

4:40 – 4:45 pm

## SPONSOR INTRODUCTION OF PANELISTS

4:45 – 5:55 pm

## FORMAL PANEL

Krystal Puga  
Spacecraft Systems Engineer, James Webb Space Telescope, Northrop Grumman  
*Moderator*

Charlie Atkinson  
Chief Engineer, James Webb Space Telescope, Northrop Grumman

Sandra Irish  
Mechanical Systems Lead Structures Engineer, James Webb Space Telescope, NASA Goddard Space Flight Center

Dr. Begoña Vila  
Instrument Systems Engineer, NASA Goddard Space Flight Center

5:55 – 6:00 pm

## WRAP-UP

Cathy Meyn  
Chair, National Council, WID



# Advancing Technologies. Advancing Careers.

Welcome to a company that is focused on the future and innovating every day. With a diverse workforce and technology portfolio there are plenty of opportunities at Leonardo DRS to suit your interests. For more information visit our website at [www.LeonardoDRS.com/careers](http://www.LeonardoDRS.com/careers).



Leonardo DRS, Inc. and its subsidiaries and affiliates are equal opportunity employers and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, or any other characteristic protected by law.



Only here do I  
get to pilot  
my own path.

[www.lockheedmartinjobs.com](http://www.lockheedmartinjobs.com)



**Heather**  
Chief of Staff for Engineering  
and Technology

© 2021 Lockheed Martin is an  
EEO/AA Employer.

# Biographies

THURSDAY, SEPTEMBER 9



## DR. JONATHAN ARENBERG

*Chief Mission Architect, Science & Robotic Exploration*  
Northrop Grumman

Dr. Jonathan Arenberg is currently Chief Mission Architect for Science and Robotic Exploration at Northrop Grumman. His work experience includes all phases of program and mission development, from early technology development, mission concepts, detailed design, test and verification, and integration and test. His last major program assignment was as Chief Engineer for the James Webb Space Telescope. In the last few years, Dr. Arenberg has led major mission studies for NASA and other government customers. He has been a principal major paradigm breaking concepts

such as the Starshade, MODE lenses, and the OASIS mission based on an inflatable reflector. He is a creative and broad thinker, capable of addressing the most challenging problems with practical and effective solutions. In addition to optical systems experience from x-rays to THz systems, he is also familiar with laser systems and components.

Dr. Arenberg has a Bachelor of Science in Physics as well as a Master of Science and PhD in Engineering from UCLA. As a committed member of the scientific community, Dr. Arenberg is a long-serving California State Science Fair Judge, frequent

public speaker, a referee for several journals, and a guest editor for several special journal issues. He is a Fellow of the International Society for Optics and Photonics, SPIE, for his contribution to astronomy and lasers. He is the author of over 210 conference presentations, papers, and book chapters, and holds 14 European and U.S. patents in a wide variety of areas of technology. Dr. Arenberg is also the co-author of a recent book on systems engineering for astronomy from SPIE Press. In 2020, he was given the Professional Achievement Award from the UCLA Henry Samueli School of Engineering and Applied Science.



## JACQUELINE MALDONADO

*Department Manager, Program Management*  
EnerSys ABSL

Jacqueline Maldonado is the Department Manager responsible for Program Management at EnerSys ABSL in Longmont, Colorado. She leads a team of seven program managers across 30+ concurrent programs for NASA, commercial, and military customers. Jacqueline has managed the battery subcontracts for several NASA programs, including JWST (exploration),

LADEE (lunar mission), GPM (earth sciences), and Parker Solar Probe. Jacqueline has been in aerospace for over 30 years, the last 12 of which have been spent with EnerSys ABSL. Her early background was in satellite integration and test of commercial telecommunication satellites. In this role, she designed ground support equipment, performed alignments, created detailed manufacturing plans, led satellite assembly technician teams, and participated

in two Ariane launch campaigns. From there, Jacqueline transitioned to systems engineering for NASA life sciences payloads on the Space Shuttle and the International Space Station. As a result, Jacqueline developed a strong skill set in requirements analysis, verification, and detailed planning, all of which ported over into her current role in program management.



## ERIN WOLF

*Program Manager, Technical Lead, and Mirror Deploy Lead, James Webb Space Telescope*  
Ball Aerospace

Erin Wolf is Program Manager, Technical Lead, and Mirror Deploy Lead for the James Webb Space Telescope program at Ball Aerospace. Wolf is responsible for technical and program management for Webb, the most complex space-based observatory ever built, through its launch and commissioning. In her role, Wolf fosters the mentorship of junior engineers and provides

growth opportunities for all career levels. Prior to joining Ball in 2017, Wolf worked on Webb at NASA's Goddard Space Flight Center for eight years. She also contributed to Landsat 9's TIRS-2 instrument and to the fourth Hubble Servicing Mission. Wolf is a member of the Experimental Aircraft Association (EAA) and has been involved with the International Society for Optics and Photonics (SPIE). She has received various awards for her work on Webb and was

recognized as a Mentor of the Quarter at Ball. Wolf is a lifetime Girl Scout and Gold Award recipient. When she is not preparing for Webb launch and commissioning, Wolf enjoys chasing around her two kids and spending time in the Rocky Mountains.

Wolf received a B.S. in Physics from the University of Puget Sound in Tacoma, WA, and attended the master's degree program in Systems Engineering at Johns Hopkins University, MD.



## SCOTT WILLOUGHBY

*Vice President and Program Manager*

James Webb Space Telescope

Scott Willoughby is the Vice President of Operations for the Strategic Space

Systems Division at Northrop Grumman's Space Systems sector, a premier provider of space and launch systems serving national security, civil, and commercial customers. In this role, Willoughby oversees all aspects of production capabilities and enabling digital transformation strategies across manufacturing, integration and test, mission assurance, global supply chain, and operations.

In addition, Willoughby serves as the Vice President and Program Manager for the James Webb Space Telescope (JWST),

overseeing all aspects of the program. Previously, Willoughby served as the P858 Program Manager for Advanced Concepts, Technology, and Emerging Systems. He oversaw program management, including financial management, human resources, capital, and customer and subcontractor interfaces at all levels of contract management.

Before his leading role on P858, Willoughby was the Program Manager for the Advanced Extremely High Frequency (AEHF) program; served as the AEHF Deputy Program Manager for Flight 1 payload production and delivery; was the Director for Integration, Test, & Launch (IT&L) for Northrop Grumman Space Technology's Production and

Supply Chain (PSC) organization, leading its Production Control Directorate; and served as the Milstar Offsite Manager for the integration of the first Block II payloads, as a Systems Engineer on Milstar Block I, and as the Lead Systems Engineer on MAPSTAR. Prior to these roles, Willoughby joined the technical staff of TRW at Northrop Grumman in 1989. He received a bachelor's degree, summa cum laude, in Electrical Engineering from Lehigh University in 1989 and a master's degree in Communication Systems from the University of Southern California in 1991. He is also a graduate of the UCLA Executive Program at the Anderson School of Management.

## THURSDAY, SEPTEMBER 16



## DR. BHAVYA LAL

*Senior Advisor to the Administrator for Budget & Finance*  
NASA

Bhavya Lal serves as the senior advisor to the NASA Administrator for

budget and finance. She was the senior White House appointee and Acting Chief of Staff at NASA for the first 100 days of the Biden Administration, during the agency's transition under the administration of President Joe Biden. Before that, she served as a member of the Biden Presidential Transition Agency Review Teams for both NASA and the Department of Defense.

Lal brings extensive experience in engineering and space technology, serving as a member of the research staff at the Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI) from 2005 to 2020. There, she led analysis of space technology, strategy, and policy for the White House Office of Science and Technology Policy (OSTP) and National Space Council, as well as federal space-oriented organizations, including NASA, the Department of Defense, and the intelligence community. She has applied her expertise in engineering systems and innovation theory and practice to topics in space, with

recent projects on commercial activities in low-Earth orbit and deep space, in-orbit servicing assembly and manufacturing, small satellites, human exploration, space nuclear power, space exploration, and space science. She has published more than 50 papers in peer-reviewed journals and conference proceedings.

Before joining STPI, Lal served as president of C-STPS LLC, a science and technology policy research and consulting firm in Waltham, MA. Prior to that, she served as director of the Center for Science and Technology Policy Studies at Abt Associates Inc. in Cambridge, MA.

Lal is an active member of the space technology and policy community, having chaired, co-chaired, or served on five high-impact National Academy of Sciences, Engineering, and Medicine (NASEM) Committees including, most recently, one on Space Nuclear Propulsion Technologies released in 2021. She served two consecutive terms on the National Oceanic and Atmospheric Administration (NOAA) Federal Advisory Committee on Commercial Remote Sensing (ACCRES)

and was an External Council member of NASA's Innovative Advanced Concepts (NIAC) Program and the Technology, Innovation and Engineering Advisory Committee of the NASA Advisory Council (NAC). She co-founded and is co-chair of the policy track of the American Nuclear Society's annual conference on Nuclear and Emerging Technologies in Space (NETS), and co-organizes a seminar series on space history and policy with the Smithsonian National Air and Space Museum. For her many contributions to the space sector, she was nominated and selected to be a Corresponding Member of the International Academy of Astronautics.

Lal earned Bachelor of Science and Master of Science degrees in Nuclear Engineering, as well as a Master of Science degree in Technology and Policy, from the Massachusetts Institute of Technology, and holds a doctorate in Public Policy and Public Administration from The George Washington University. She is a member of both the nuclear engineering and public policy honor societies.



## DR. CHRISTINE CHEN

*Associate Astronomer*  
Space Telescope Science Institute

Dr. Christine Chen is currently a member of the Science Mission Office (SMO) and the JWST Science Policy Group (SPG) Lead. The JWST SPG issues General Observer (GO) and Director’s Discretionary (DD) Calls for Proposals to the astronomical community to conduct research using JWST; it also organizes a Dual Anonymous Peer Review of the proposals submitted by the astronomical community in response to these calls. Dr. Chen has served as an associate astronomer with tenure at the Institute since 2015 and joined as an assistant astronomer in 2008. In addition, she has been a Research Scientist in the Johns Hopkins University Physics and Astronomy Department since 2016 and joined as an Associate Research Scientist in 2015.

Dr. Chen’s research has centered on using multi-wavelength observations to elucidate the properties of dust and gas in debris disks (grain size, porosity, shape, and composition). Debris disks are exoplanetary systems that contain not only planets but also minor body belts, analogous to the asteroid and Kuiper Belts in our Solar System. Detailed characterization of the constituent dust and gas can shed light on how exoplanetary systems form and evolve. Dr. Chen is currently leading an international team of astronomers using the Gemini Planet Imager on the Gemini South Telescope to better characterize the star light reflected from debris dust. She is a member of the JWST Mid Infrared Instrument (MIRI) Guaranteed Time Observer (GTO) Team.

Before joining the Institute, Dr. Chen was a Spitzer Postdoctoral Fellow at the National

Optical Astronomy Observatory (NOAO), a NOAO Postdoctoral Fellow at the NASA Life and Planets Astrobiology Center, and a National Research Council Resident Research Associate at the Jet Propulsion Laboratory. While a postdoc working with the Spitzer Infrared Spectrograph (IRS) Disks Team, she was the first researcher to model the mid-infrared thermal emission for large numbers of debris disks using the IRS. Throughout her career, Dr. Chen has served as a reviewer for NASA ROSES calls for proposals; the time allocation process for NASA WIYN, NASA Keck, and the Spitzer Science Center; and the fellow selection process for the Hubble, Sagan, and Giacconi Fellowships. She is a member of the American Astronomical Society (AAS), the Astronomical Society of the Pacific (ASP), and the International Astronomical Union (IAU).

# Thank You to Our Strategic Partners





## DR. MARK LEWIS

*Executive Director*

NDIA Emerging Technologies Institute

Dr. Mark J. Lewis is the Executive Director of NDIA's Emerging Technologies Institute

(NDIA ETI), a non-partisan institute focused on technologies that are critical to the future of national defense. ETI provides research and analyses to inform the development and integration of emerging technologies into the defense industrial base.

Prior to this position, Dr. Lewis was the Director of Defense Research & Engineering in the Department of Defense (DoD), overseeing technology modernization for all Services and DoD Agencies, as well as the acting Deputy Under Secretary of Defense for Research & Engineering. In that role, he was the Pentagon's senior-most scientist, managing a \$17B budget that included DARPA, the Missile Defense Agency, the Defense Innovation Unit, the Space Development Agency, Federally Funded Research and Development Centers (FFRDC), and the Department's basic and applied research portfolio.

From 2012 to 2019, Dr. Lewis was the Director of the Science and Technology Policy Institute, an FFRDC that supported the Executive Office of the President and other Executive Branch agencies in

the formulation of national science and technology policy. Dr. Lewis is a professor emeritus at the University of Maryland, where he served as the Willis Young, Jr., Professor and Chair of the Department of Aerospace Engineering until 2012.

A faculty member at Maryland for 25 years, Dr. Lewis taught and conducted basic and applied research in the fields of hypersonic aerodynamics, advanced propulsion, and space vehicle design and optimization. Best known for his work in hypersonics, Dr. Lewis's research has spanned the aerospace flight spectrum from the analysis of conventional jet engines to entry into planetary atmospheres.

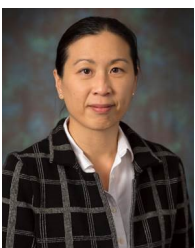
From 2004 to 2008, Dr. Lewis was the Chief Scientist of the U.S. Air Force, the principal scientific adviser to the Chief of Staff and Secretary of the Air Force. As the longest-serving Chief Scientist in Air Force history, his primary areas of focus included hypersonics, space launch, energy, sustainment, advanced propulsion, basic research, and workforce development.

From 2010 to 2011, he was President of the American Institute of Aeronautics and Astronautics.

Dr. Lewis attended the Massachusetts Institute of Technology, where he received his Bachelor of Science in Aeronautics and Astronautics, Bachelor of Science in Earth and Planetary Science (1984), and Master of Science (1985) and Doctor of Science (1988) in Aeronautics and Astronautics.

He is the author of more than 320 publications and has been an adviser to more than 60 graduate students. In addition, he has served on various boards for NASA and DoD, including two terms on the Air Force Scientific Advisory Board. A recipient of the USAF Exemplary, Meritorious, and Exceptional Civilian Service Awards, and of the Secretary of Defense Outstanding Public Service Award, Dr. Lewis was also the 1994 AIAA National Capital Young Scientist/Engineer of the Year; received the IECEC/AIAA Lifetime Achievement Award, the AIAA Dryden Lectureship Award, and the AFA Theodore von Karman Award; and is an Aviation Week and Space Technology Laureate.

He is a member of the International Academy of Astronautics, a Fellow of the American Society of Mechanical Engineers, a Fellow of the Royal Aeronautical Society, and an Honorary Fellow of the American Institute of Aeronautics and Astronautics.



## DR. AMY LO

*Deputy Director, Vehicle Engineering Integrated Project Team, James Webb Space Telescope Northrop Grumman*

Amy Lo is the Deputy Director for the Vehicle Engineering IPT of the James

Webb Space Telescope. Amy is responsible for execution in support of the Space Vehicle Director for cost, schedule, and management of all Space Vehicle elements, as well as ensuring technical execution and process compliance for all Vehicle Engineering disciplines supporting the JWST program. Prior to this role, Amy served as the Alignments Thread Lead for the James Webb Space Telescope, responsible for all aspects of mechanical alignments for the

Observatory. Amy joined Northrop Grumman in 2005 and was involved in a variety of optical design and simulation projects with large deployables. Her expertise includes mathematical simulations, mission architecture development, mission analysis, and system engineering. Prior roles include Mission Performance Thread Lead for the Next Generation Polar program, System Engineering for the CERES program, as well as support to Technology Development and Civil Systems Business Development. She has worked on developing the New Worlds Observer mission concept, which uses a "Starshade" to occult nearby

stars and enable the detection of Earth-like planets. Amy earned her Bachelor's degree in Physics at Brown University and her PhD in Astrophysics from UCLA; her doctoral thesis was on the Cosmic Microwave Background. She is a member of the American Astronomical Society, the Institute of Electrical and Electronics Engineers, and the American Institute of Aeronautics and Astronautics. She has more than 30 technical publications in the subjects of Astrophysics and Exoplanet Detection Technology.



## JIM MOORE

*President and Chief Executive Officer*  
NeXolve

Mr. Moore is the President and CEO of NeXolve Holding Company LLC. He

has 33 years' experience in design and analysis of advanced aerospace hardware. Mr. Moore's technical expertise covers many aspects of rocket and spacecraft engineering disciplines. He has served as Project Engineer and Principal Investigator on various hardware development contracts and analysis efforts supporting R&D

programs. He served as Program Manager on NeXolve's subcontract to design, manufacture and test the James Webb Space Telescope Sun Shield Membrane Sub-System. Mr. Moore's technical areas of expertise include; optical design and analysis, large lightweight space structures, membrane mechanics, thermal analysis and mechanical design for cryogenic turbomachinery.

Mr. Moore is active in several technical

societies and has been selected for leadership roles. Specifically, he served as General Chair and Technical Chair for AIAA Spacecraft Structures Forum. Additionally, Mr. Moore has served as the General Chair for SPIE's Polymer Optics Conference. He routinely serves these organizations in various technical leadership roles throughout the year. He has authored and co-authored 34 technical papers and a chapter in the AIAA Gossamer Spacecraft Design Textbook.

## THURSDAY, SEPTEMBER 23



## KRYSTAL PUGA

*Spacecraft Systems Engineer, James Webb Space Telescope*  
Northrop Grumman

Krystal Puga is a Spacecraft Systems Engineer with Northrop Grumman

Space Systems based in Los Angeles, CA. She is the Hardware Manager for the 178 deployment mechanisms that will unfurl the James Webb Space Telescope (JWST) once it is in space. She is also the Launch Product Lead for the upcoming Launch in French Guiana. Additionally, Krystal is the

Program Manager for the NG Space Sector Innovation Ecosystem.

Krystal is passionate about space education and has founded numerous programs and engineering competitions to promote STEM to middle and high school students, including a 3D-printed Cubesat educational kit to teach students about transient planet-finding methods. Krystal has also served as a Hispanic Hero for the Los Angeles

Hispanic Youth Institute since 2009.

Krystal is a first-generation Latina from Tulare, CA. She holds an M.S. in Astronautical Engineering from the University of Southern California and a B.S. in Engineering Physics from Embry Riddle Aeronautical University, Florida, and is currently pursuing a degree in Human Spaceflight.



## CHARLIE ATKINSON

*Chief Engineer, James Webb Space Telescope*  
Northrop Grumman

Charlie Atkinson has 34 years of technical and program management

experience in the civil space, defense, and aerospace industry focused on development programs, from inception to delivery. Since March 2019, Charlie has been the James Webb Space Telescope (JWST) Chief Engineer, responsible for the technical success of the mission. JWST is the highest priority science mission at NASA and is slated for launch in late 2021.

Prior to becoming the JWST Chief Engineer, Charlie was the Northrop Grumman Vehicle Engineering Deputy Manager after having been the Deputy Telescope Manager for JWST since the program's inception, managing the technology development, design, assembly, and test of the first large aperture, deployable, segmented telescope to be put in space. Before JWST, Charlie was responsible for the integration and alignment of the grazing incidence cylindrical mirrors on the Chandra X-Ray Telescope. Charlie has also worked on digital camera systems, a laser communications system, and several other

space-borne optical systems.

Charlie received his B.S. in Physics, Math, and Geophysics from Washington and Lee University in Virginia. Charlie has twice been awarded an Engineers' Council Distinguished Engineering Achievement Award, the Robert H. Goddard Exceptional Achievement Award in Engineering, and the NASA Exceptional Public Service Medal; he has also been awarded three Northrop Grumman Chairman's Awards and the *Aviation Week* Program Excellence Award. He holds a patent for a telescope design using a Discontinuous Pupil corrector.





## SANDRA IRISH

*Mechanical Systems Lead Structures Engineer, James Webb Space Telescope*  
NASA Goddard Space Flight Center

Mrs. Sandra Irish has 38 years of experience in aerospace working for NASA Goddard

Space Flight Center. She is a Group Leader in the Mechanical Systems Analysis and Simulation Branch in the Engineering directorate at Goddard. She is currently the Mechanical Systems Lead Structures Engineer for the James Webb Space Telescope (JWST). Mrs. Irish received a B.S. in Aerospace Engineering from the University of Maryland. She started her career at NASA Goddard working on space flight instruments and

spacecraft in the area of structural dynamics, systems analysis, and mechanical testing. She has worked on projects such as Broad Band X-Ray Telescope, Upper Atmosphere Research Satellite, ASTRO-E missions with the Japanese Space Agency, and Cosmic Background Explorer (COBE) in which the science earned John Mather the Nobel Prize for Physics. She has been working on JWST for 15 years and runs a structural dynamics team responsible for launch and transportation load environments, mechanical testing, and thermal distortion and jitter performance on-orbit for the telescope. In addition to her various

engineering positions, Mrs. Irish mentors engineering students and is involved in public outreach activities that help inspire young engineers. She is a member of the Society of Women Engineers and has developed a Women Engineers Group at NASA Goddard entitled WEST-Women Engineers in Space and Technology. Mrs. Irish has been the recipient of Robert H. Goddard Exceptional Achievement Award for Engineering and has received the NASA Agency Award for Outstanding Leadership for her work on JWST.



## DR. BEGOÑA VILA

*Instrument Systems Engineer*  
NASA Goddard Space Flight Center

Dr. Begoña Vila is the Instrument Systems Engineer at NASA's Goddard Space Flight

Center/SGT for two of the instruments on the James Webb Space Telescope (JWST), one of them being the Fine Guidance Sensor responsible for the pointing and stability of the Observatory. She is also the Deputy Lead for the operations of all the Webb instruments after launch.

She obtained her PhD in Astrophysics at Jodrell Bank, Manchester University, UK, after her undergraduate degree in Spain. Her research included rotation curves of

galaxies, nuclear galactic activity, and stellar abundances, observing them in both optical and radio wavelengths. She has been involved with JWST since 2006, starting in Canada under the Canadian Space Agency and moving to NASA after the flight instruments were delivered in 2012. She was the overall Test Lead for the final cryogenic test at Goddard for all the JWST instruments and was heavily involved in the testing completed at the Johnson Space Center cryogenic chamber that included the JWST instruments and mirrors. She is currently involved in the test activities at the Observatory level at Northrop Grumman Space Systems as well as the detailed plans for commissioning and operating the

instruments following the launch in 2021.

She has received various achievement awards, including the NASA Exceptional Public Achievement Medal in 2016, the Premio Wonenburger by the Xunta de Galicia (Spain) in 2017, a Gallego del Año Award (Spain) in 2019, and Top10 Spanish Women Leaders Abroad by Mujeres&Cia in 2021.

Apart from her work, Dr. Begoña Vila enjoys outreach activities communicating with the general public on JWST, STEAM, science, or other, both in English and in Spanish. We can hear Dr. Vila talking about the JWST mission in Spanish here: <https://www.youtube.com/watch?v=01ObVXgEIUI>.



# WID SCHOLAR

Formerly HORIZONS Scholarship

## ENCOURAGING NATIONAL SECURITY & DEFENSE CAREERS

Through the WID Scholar program, Women In Defense encourages women to pursue careers supporting U.S. national security with a focus on defense or foreign policy.

Since its establishment in 1988, the WID Scholar program, previously HORIZONS, has awarded more than \$675,000 to more than 165 recipients pursuing degrees ranging from law to engineering to math to public policy. Awards are based on academic achievement, participation in defense and national security activities, field of study, work experience, statements of

interest, recommendations, and financial need. Recipients must report periodically on the impact of the awards on their personal and professional lives.

The National Defense Industrial Association, Women In Defense, and their sponsors are proud to invest in high-performing women to increase diversity and innovation in government, academia, and the defense industrial workforce.

[WomenInDefense.net/WIDScholar](https://WomenInDefense.net/WIDScholar)

# 2020 WID Scholarship Awardees



### TAM BREWSTER

*Industrial Engineering & Engineering Leadership*  
Northeastern University

Tam Brewster has seven years of industry experience in the defense and semiconductor sector. She is currently a mission assurance engineer at Ball Aerospace. With her

previous roles at Samsung and Draper, Tam provides deep expertise in failure analysis at the process and manufacturing levels to direct risk-mitigating mission assurance efforts for the defense industry. In addition, she uses her platform as a leader to advocate for the recruitment

and retention of women in highly technical fields. Tam holds a B.S. from U.C. Irvine in Chemistry and is pursuing her M.S. from Northeastern in Industrial Engineering and Engineering Leadership.



### ELIZABETH DOUGHTY

*Exercise Science*  
University at Buffalo

Elizabeth "Liz" Doughty is an incoming doctoral student in Exercise Science at the University at Buffalo. During her recent research fellowship at the U.S. Army Research Institute of Environmental

Medicine, Liz focused her work on characterizing elite female warfighters and the physiological impact of heavy load carriage on soldier performance. She earned her Master's degree in Exercise and Sport Science from Merrimack College, and her Bachelor's degree in Athletic Training from Massachusetts College of Liberal Arts. As

a doctoral student, Liz aims to investigate injury risks, prevention, and implications on female warfighter performance.



## RONI FRASER

*Sociology & Criminal Justice*  
University of Delaware

the University of Delaware (UD), specializing in disasters, environmental sociology, and

Roni Fraser is a doctoral student in the Department of Sociology and Criminal Justice at

health. Roni previously earned her M.A. in Sociology from UD and a B.S. in Emergency Administration and Planning from The University of North Texas. She has gained professional experience from multiple federal agencies, including the NRC, NHTSA, FEMA, and Executive Office of the United States

President. Roni is also an active disaster response volunteer with Team Rubicon and plans to seek acceptance to the U.S. Coast Guard Officer Candidate School following her graduation.



## VIVIANA ANGELINI

*Security Policy & Conflict Resolution*  
Elliot School of International Affairs, The George Washington University

Affairs at The George Washington University, with a focus on Security Policy and Conflict Resolution. She graduated Summa Cum

Viviana Angelini will be pursuing a Master's degree at the Elliot School of International

Laude from the University of Maryland, Baltimore County, with a B.A. in Political Science, a certificate in Security Studies, and minors in Russian, International Politics, and Piano Performance. Throughout her undergraduate career, Viviana researched North Korea's nuclear targeting strategy and served in multiple internships in the

U.S. House of Representatives and the Department of Defense. Viviana expects to continue her public service throughout graduate school and beyond, advocating for innovative, collaborative, and equitable solutions to global security threats.



## MICHAELA COPLEN

*International Relations*  
University of Oxford

the University of Oxford, where she

Michaela Coplen is a doctoral candidate in International Relations at

received her MPhil in 2020. Her research spans a breadth of issues in conflict and peacebuilding, with a specific focus on the practice of international negotiations. She was appointed as a National Student Poet by Mrs. Obama and has worked for

the U.S. Army War College's Peacekeeping and Stability Operations Institute as well as USAID. She holds a B.A. in International Studies from Vassar College, where she was a Ford Scholar and a Tananbaum Fellow, and is a 2018 Marshall Scholar.



## MADISON REED

*Chemical Engineering*  
Worcester Polytechnic Institute

Madison Reed is a first-year doctoral student in Chemical Engineering at Worcester

Polytechnic Institute. She recently graduated with honors from UMass Lowell's Plastics Engineering program in May 2021 where she performed research for the Departments of Defense and of Homeland Security.

Madison is passionate about sustainable and biobased materials for defense applications and data science. Her doctoral research will focus on the design of efficient, biobased fuels and waste-to-energy conversions.



## ALLISON OWEN

*Nonproliferation & Terrorism Studies*  
Middlebury Institute of International Studies

Studies at the Middlebury Institute of International Studies, as well as for

Allison Owen is a Master of Arts candidate for Nonproliferation and Terrorism

International Affairs with a concentration in WMD Nonproliferation, Nuclear Policy, and Global Security at MGIMO University. While attending courses, she worked as a Graduate Research Assistant at the Center on Terrorism, Extremism, and Counterterrorism. Prior to her master's

program, she received a Bachelor of Science in Electrical Engineering from the University of Kansas and proceeded to work at the U.S. Department of Energy's Kansas City National Security Campus, which is managed by Honeywell Federal Manufacturing and Technologies.



## LAUREN RISANY

*Aeronautical & Astronautical Engineering*  
Purdue University

Lauren Risany is entering her senior year at Purdue University, studying Aeronautical

and Astronautical Engineering with a concentration in Autonomy and Control. She

is a year-round intern at Sandia National Laboratories and currently develops real-time trajectory optimization strategies for hypersonic boost-glide vehicles. Upon graduation, Lauren will continue her education in graduate school. She hopes to use her passion for national security to

investigate mission planning in contested environments. Lauren is also studying to earn her private pilot's license to gain further familiarity with flight systems and to enjoy her passion for flight.



## NAOMIE BAPTISTE

*Business Administration*  
Howard University

Naomie Baptiste is a Master of Business Administration candidate at

Howard University, where the Business School is ranked as Bloomberg's No. 1 Historically Black Colleges and Universities

(HBCU). She holds a Bachelor of Science degree in Civil Engineering from Florida State University. She is a Program Manager at Lockheed Martin in Orlando, FL, where she works on projects related to global security, innovation, and aerospace for the U.S. Department of Defense and U.S. federal government agencies. She volunteers

her time as the President of the Central Florida Section of the Society of Women Engineers and was recently awarded the *Orlando Business Journal's* 40 Under 40 recognition for her contributions to the industry and community.



## NESRINE TAHA

*Engineering Management*  
School of Engineering and Applied Sciences, The George Washington University

Nesrine Taha, national program manager of an international military construction

program at the U.S. Army Corps of Engineers, is in her last year of her doctoral studies at The George Washington University School of Engineering and Applied Sciences. Supported by Women In Defense, her doctoral research is at the intersection of artificial intelligence and cyber resilience, and

involves the use of AI to ensure smart military bases are protected from cyber intrusions.

Nesrine started her career as a mechanical engineer and fire protection specialist on Bechtel Power projects. After a successful career in power generation, she took a career break to raise her family. Nesrine then joined the Nanoscale Research Laboratory at the University of Cambridge where she designed and forged multifunctional nanoscale particulate systems for the thermal ablation of glioblastoma multiforme

cancer cells. As part of her research, she also formulated a protocol for the control of the surface texture of gold nanoshells for plasmonic applications. Nesrine holds Master's degrees in Mechanical Engineering and Nanoscale Science and Engineering from American University in Cairo and the University of Cambridge, respectively.

Nesrine's personal passion is supporting women in becoming financially secure through job retraining and reentry into the workforce.

# Sponsor Descriptions

## WID 2021 SILVER STRATEGIC PARTNER

### Booz | Allen | Hamilton®

Empower people to change the world<sup>SM</sup>

We are a global firm of approximately 26,300 diverse, passionate, and exceptional people driven to excel, do right, and realize positive change in everything we do. We bring bold thinking and a desire to be the best in our work in consulting, analytics, digital solutions, engineering, and cyber, and with industries ranging from defense to health to energy to international development. We celebrate and value diversity in all its forms; it's something we truly value as a multicultural community of problem solvers. We believe in corporate and individual citizenship that make our communities better places for all.

We have one guiding purpose—to empower people to change the world. Our founder, Edwin Booz, said it best: “Start with character ... and fear not the future.” We bring a ferocious integrity to not only train our clients to tackle the problems they face today but to help them change the status quo for tomorrow. Each day, we imagine, invent, and deliver new ways to better serve our employees, our clients, and the world.



### Webinar Sponsor

Elbit Systems of America, headquartered in Fort Worth, Texas, is a leading provider of high-performance products, system solutions, and support services focusing on the defense, homeland security, law enforcement, commercial aviation, and medical instrumentation markets. With facilities throughout the U.S., Elbit America is dedicated to supporting those who contribute daily to the safety and security of the United States. Elbit Systems of America is part of the Elbit Systems Ltd. global family of high technology companies engaged in a wide range of programs for innovative defense and commercial applications. For additional information, visit: [www.ElbitAmerica.com](http://www.ElbitAmerica.com) or follow us on [Twitter](#), [LinkedIn](#) and [Instagram](#).

## WID 2021 SILVER STRATEGIC PARTNER



Leidos is a Fortune 500® technology, engineering, and science solutions and services leader working to solve the world's toughest challenges in the defense, intelligence, civil, and health markets. The company's 43,000 employees support vital missions for government and commercial customers. Headquartered in Reston, Va., Leidos reported annual revenues of approximately \$12.30 billion for the fiscal year ended January 1, 2021. For more information, visit [www.Leidos.com](http://www.Leidos.com).



### Registration Sponsor

Leonardo DRS is a prime contractor, leading technology innovator and supplier of integrated products, services and support to military forces, intelligence agencies and defense contractors worldwide. Headquartered in Arlington, Virginia, Leonardo DRS is a wholly owned subsidiary of Leonardo S.p.A., which employs more than 45,000 people worldwide. Learn more at [leonardodrs.com](http://leonardodrs.com).

## WID 2021 BRONZE STRATEGIC PARTNER



Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 110,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Lockheed Martin solves the world's toughest technology challenges. More than 100 nations rely on Lockheed Martin employees, products and technologies to help them protect and connect their citizens and advance scientific discovery. In a time of growing uncertainty and unpredictable threats, we focus on innovation and performance to keep our customers at the center of everything we do.



### Webinar Sponsor

Northrop Grumman solves the toughest problems in space, aeronautics, defense and cyberspace to meet the ever evolving needs of our customers worldwide. Our 90,000 employees define possible every day using science, technology and engineering to create and deliver advanced systems,

## WID 2021 SILVER STRATEGIC PARTNER



STI is an SBA-certified Woman Owned Small Business (WOSB), supporting the Department of Defense (DoD) and Department of Veterans Affairs (VA) for 35 years and helping government and commercial clients maximize resources and minimize costs. As a Military Health System (MHS) global partner, STI provides state-of-the-art, flexible, scalable, interoperable solutions and vast subject matter expertise in finance, acquisition, and technology to improve efficiency and standardize enterprise processes and procedures. STI empowers MHS senior leaders with actionable information to make sound decisions in support of strategic priorities such as the Quadruple Aim: increased readiness, better care, better health, and lower costs. STI is a true force multiplier by developing efficiencies and freeing critical resources to fund modernization efforts that shape global healthcare delivery. STI's expanded services include health information management, financial consulting and analysis, and related training and staffing for military healthcare facilities around the world. We provide efficiencies for Military Treatment Facilities (MTFs) in every global region, including Defense Health Agency and Army MTFs in the United States, Navy MTFs from Florida to Japan, and Air Force MTFs worldwide. To learn more about the talent and technologies that will move your mission ahead, visit [stic2.com](http://stic2.com).

# Join the WID Family Today

Women In Defense traces its roots to 1979 when a group of women saw the need for an organization dedicated to networking and professional development within the defense and national security workspace. We welcome all women and men working in defense and national security to join WID. Membership provides access to a broad national network of women and men working in government, the defense industry, and academia. Membership also provides access to 20 local Chapters that provide leadership, networking, professional development, and mentoring opportunities throughout the year. Membership is free for government employees and active military, and is \$40 per year for industry and academia members. You can find membership information at [WomenInDefense.net/Join](https://WomenInDefense.net/Join)



As of September 2021



## Chapter Map



- |                    |                          |                           |                      |
|--------------------|--------------------------|---------------------------|----------------------|
| 1. Arizona         | 7. Greater Boston        | 13. Michigan              | 19. Space Coast      |
| 2. Augusta         | 8. Greater Hampton Roads | 14. Mid-Atlantic          | 20. Tennessee Valley |
| 3. Capital         | 9. Greater Los Angeles   | 15. New England Shoreline |                      |
| 4. Central Florida | 10. Greater Ohio Valley  | 16. Palmetto              |                      |
| 5. Chesapeake Bay  | 11. Greater Tampa Bay    | 17. Picatinny             |                      |
| 6. First Coast     | 12. Liberty              | 18. San Diego             |                      |