X-59 ROLLOUT

MEDIA KIT

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X-59 Media Kit Digital Assets

Photo

Glamour Shots: https://lmaeronauticspalmdale.smugmug.com/2024-Events/X-59-Roll-Out-Ceremony-Photos/n-MB9htP

Video

Password: X-59ROC

Manufacturing B-Roll: https://vimeo.com/lmaeronautics/review/901253731/7aa2683bb2

Glamour B-Roll: https://vimeo.com/lmaeronautics/review/901250964/43d0db6a42

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News Release

Skunk Works® Rolls Out X-59, NASA's Newest X-Plane

PALMDALE, Calif., Jan. 12, 2024 – Lockheed Martin Skunk Works® (NYSE: LMT) rolled out the X-59, a unique experimental aircraft designed to quiet the sonic boom, at a ceremony in Palmdale, California. The ceremony marked a significant milestone in Lockheed Martin and NASA's decades-long journey to solve one of the most persistent challenges of supersonic flight – the sonic boom.

"We're thrilled to take on this challenge alongside NASA, whose quiet supersonic technology mission will have lasting, transformational impacts for people around the world," said John Clark, vice president and general manager, Lockheed Martin Skunk Works. "This project is just one example of the broader ingenuity of our industry as we continually strive to push the envelope of what's possible."

Rollout ceremonies are a long-standing aviation tradition, and in the case of the X-59, it celebrated technical advancements, collaboration and innovation that stemmed from years of research, development and production of a one-of-a-kind technology demonstrator aircraft that will reduce the loudness of sonic booms to a gentle thump.

"The entire X-59 team leaned into the expertise of both legendary organizations, NASA and Lockheed Martin, to ensure success for this program. I am extremely proud of everyone who made this historic moment possible," said Greg Ulmer, executive vice president, Lockheed Martin Aeronautics.

Lockheed Martin, NASA and government leaders attended the ceremony to include:

- Greg Ulmer, executive vice president, Lockheed Martin Aeronautics
- John Clark, vice president and general manager, Lockheed Martin Skunk Works
- Pam Melroy, NASA Deputy Administrator
- Jim Free, NASA Associate Administrator
- Bob Pearce, NASA Associate Administrator
- Dee Dee Myers, California's Senior Economic Advisor to the Governor

An X-59 media kit containing photo and video from the ceremony and more is available here.

Next, the aircraft will complete ground tests including engine-run and taxi tests before its next major milestone, first flight, later this year. After the aircraft is validated in initial flight tests, it will move into the acoustic testing phase. This phase will include flights over populated areas to provide U.S. and international regulators with statistically valid data required to help approve new rules that could allow quiet commercial supersonic flight over land. This would cut commercial flight times to half of what they are today, transforming travel for people around the world.

For additional information, visit our website: https://www.lockheedmartin.com/en-us/products/x-59-quiet-supersonic/x-59-rollout-event.html

About Lockheed Martin

Headquartered in Bethesda, Maryland, Lockheed Martin Corporation is a global security and aerospace company that employs approximately 116,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

Please follow @LMNews on X for the latest announcements and news across the corporation.

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Skunk Works

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X-59 Quiet Supersonic Technology X-Plane

Quieting the Sonic Boom

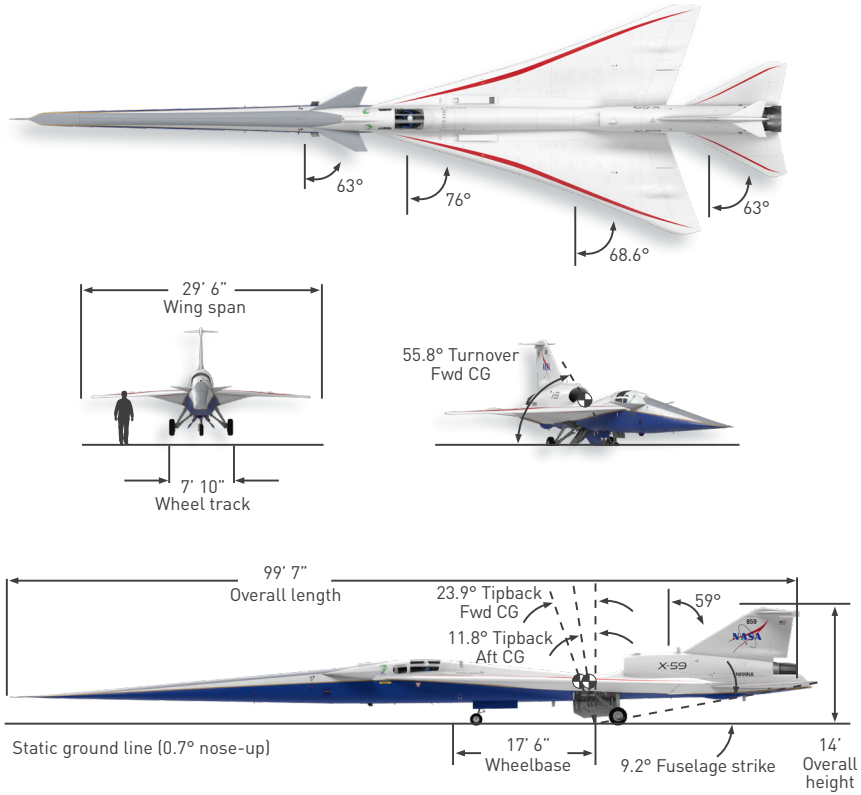
X-59 Quiet Supersonic Technology X-Plane

Quieting the Sonic Boom

SUPPORTING NASA'S MISSION TO SILENCE THE SONIC BOOM

For more than a decade, Lockheed Martin Skunk Works® and NASA have collaborated to solve one of the most persistent challenges of supersonic flight – the sonic boom. Lockheed Martin Skunk Works is leading the design, build and flight test of the the X-59 quiet supersonic technology X-plane. The technology demonstrator will be flown over populated areas to provide U.S. and international regulators with statistically valid data required to help approve new rules that could allow quiet commercial supersonic flight over land, which could bring us one step closer to quiet supersonic travel for passengers around the globe.

The X-59 is an experimental supersonic aircraft shaped to reduce the loudness of a sonic boom reaching the ground to that of a gentle thump. The X-plane accomplishes this by a tailored design that separates the shock waves that produce sonic booms, making them quieter. The resulting supersonic "heartbeat" is dramatically quieter than the disruptive N-wave boom generated by today's supersonic aircraft. We look forward to supporting NASA in the effort to obtain the data regulators will need to make informed decisions on appropriate sonic boom levels in the quest to remove the prohibition on supersonic over land flight.

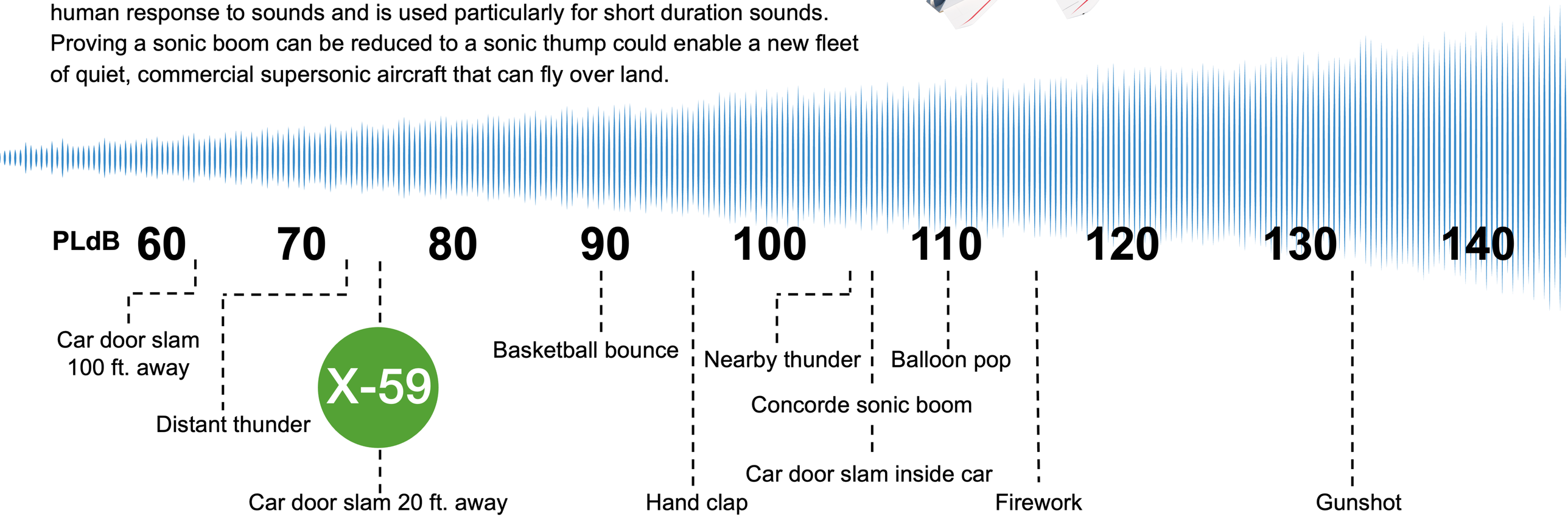


X-59 CONFIGURATION

Max Design Gross Weight	25,000 lbs
Empty Weight	14,990 lbs
Fuel	8,700 lbs
Payload	600 lbs
Design Mach	1.4
Loudness	<75 PLdB
Engine	1xF414-GE-100
Landing Gear	F-16 Blk25 NLG
	F-16 Blk25 MLG

Just how quiet will NASA's X-59 be?

NASA's single-seat X-59 experimental aircraft will produce a barely audible sonic thump to people on the ground when cruising at supersonic speeds. In technical terms, the X-59's sonic thump will be around 75 Perceived Level decibels (PLdB) or less. PLdB is one of numerous scales, in decibels, that is used to understand human response to sounds and is used particularly for short duration sounds. Proving a sonic boom can be reduced to a sonic thump could enable a new fleet of quiet, commercial supersonic aircraft that can fly over land.



What you should know about NASA's Quesst mission

1 WE WANT TO DRASTICALLY REDUCE TRAVEL TIME

But first, we need to change the rules

The main goal of NASA's Quesst mission is to provide data to U.S. and international regulators so they may consider changing current rules to enable quiet commercial supersonic flight over land.

2 WE'RE BUILDING A NEW X-PLANE

It's not like any other

NASA and Lockheed Martin are building NASA's X-59 aircraft. It will be 99.7 feet long with a wingspan of 29.5 feet. The design cruise speed of the aircraft is Mach 1.4 or 925 miles per hour at an altitude of approximately 55,000 feet.

3 THE DESIGN OF THE X-59 IS UNIQUE

It's all about being quiet

The X-59 is an experimental aircraft with a unique shape and set of technologies that reduce the loudness of a sonic boom reaching the ground to a gentle thump. Hey, you might not even hear it at all.

4 THE X-59 IS FOR RESEARCH PURPOSES ONLY

It will never carry passengers

The X-59 is not a prototype design for a commercial airliner. Aircraft manufacturers may choose to include technologies developed for the X-59 in future designs of commercial supersonic aircraft.

5 THE X-59 MAY FLY OVER YOUR COMMUNITY

Your role is crucial

NASA will fly the X-59 above four to six U.S. communities and ask residents to share their response to the aircraft's sonic thump.

6 THE FUTURE OF AVIATION IS HERE

Want to know more?

Follow **nasa.gov/Quesst**

NP-2019-05-032-LaRC

Greg Ulmer

Executive Vice President
Lockheed Martin Aeronautics

Greg M. Ulmer is the executive vice president of the Aeronautics business area in Lockheed Martin Corporation. In this capacity, he is responsible for leading the Aeronautics business, which is a more than $25 billion enterprise employing approximately 35,000 people. The Aeronautics portfolio features 5th Generation tactical aircraft; air mobility; uncrewed and intelligence, surveillance and reconnaissance platforms, including the F-35, F-22, F-16 and C-130; and the Advanced Development Programs (ADP) organization, informally known as the Skunk Works®.

Previously, Ulmer was the vice president and general manager of the F-35 Lightning II program. In this capacity, he was responsible for leading all areas of the F-35 Lightning II fighter aircraft program, including development, production, sustainment and modernization. He previously served as Lockheed Martin Aeronautics' vice president of the F-35 Aircraft Production business unit. In that role, he was responsible for all aspects of global F-35 production and delivery, including program management, production operations, supply chain management, quality, affordability, tooling and manufacturing rate readiness, and customer engagement.

He also previously served as the vice president of operations for the Skunk Works. In this role, he was responsible for ADP operations undertaken by more than 3,000 employees across multiple Aeronautics sites, overseeing the F-22 Raptor Modification Line, U-2 Dragon Lady Periodic Depot Maintenance, F-35 Lightning II subassembly work and ADP Special Programs.

Throughout his career, Ulmer has led several critical initiatives for Lockheed Martin as the C-5 vice president and program manager responsible for the overall operations and leadership of the C-5 Reliability Enhancement and Re-Engining Program and the Avionics Modernization Program; C-130 deputy program manager for operations; C-130 air vehicle director; deputy chief engineer and Flight Test integrated product team senior manager; and other roles. Ulmer began his career as a flight test engineer supporting the MD-11, C-17 and C-130J programs from first flight through certification for all three aircraft.

Ulmer is a member of the Board of Directors for the Fort Worth Economic Development Partnership and a fellow in the Royal Aeronautical Society. He is a graduate of California Polytechnic State University in San Luis Obispo, California, where he received a bachelor's degree in aeronautical engineering, and he holds an executive master's degree in business management with an emphasis on aerospace from the University of Tennessee.

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John Clark

X-59 Air Vehicle Lead
Lockheed Martin Skunk Works®

John Clark is vice president and general manager of Lockheed Martin's Advanced Development Programs (ADP), also known as the Skunk Works®, for Lockheed Martin Aeronautics. In this capacity, he is responsible for leading all ADP activities and personnel across the Aeronautics enterprise, engaging with a diverse customer community and setting strategic priorities for the growth engine of the business. He also serves an active member of the Aeronautics Executive Leadership Team.
Previously, John was the Aeronautics Engineering & Technology vice president. In this capacity, he was responsible for the organization's strategic and operational leadership, ensuring technical integrity of products and processes. included the functional leadership of the 8000+ engineers within the Aeronautics business area. He also supported technical concept development.

Prior to this role, John was the vice president of Intelligence, Surveillance and Reconnaissance (ISR) and Unmanned Aircraft Systems (UAS) for the Skunk Works, a portfolio with $800 million in annual sales, with team of about 1,500 employees. His primary responsibilities included leadership of multiple classified programs, development of cross-portfolio business strategies, and multi-domain operations capabilities.

Additionally, John was the director of Tactical Systems responsible for leading the concept refinement phase and program capture of a DoD ACAT 1 program valued at over $5B. He has also previously served as the director of the Focused Technology Roadmaps organization where he and his team transitioned technology to address the needs of all Aeronautics platforms. This included directing a portfolio of technology roadmaps including Survivability, Software Systems, Electronic Warfare, Weapons, Sensors, Cyber, and Anti- Tamper technologies. In this position, John guided the capture of over $200M in R&D work within 18 months.

In addition, John was the thought leader and primary strategist leading the development of an Enterprise-wide Open System Architecture technology strategy guiding internal efforts as well as the Air Force Open Mission Systems standard effort from 2011 to 2014. John served as the Program Manager of multiple UAV Command and Control and Autonomy related programs strategically positioning ADP in the mission autonomy area while leading the development of the core software and hardware architecture for ADP UAV program activities.

Throughout his career, John has led several critical initiatives for Lockheed Martin Corporation, including Open Mission Systems, Common Mission Control Center, System of Systems Integration Technology, Distributed Battle Management, P930, Networked Electronic Attack, and a broad list of science and technology programs capturing over $500M in research and development activities in the last 15 years serving both Air Force and Navy customers.

John holds a bachelor's degree in Chemical Engineering from the University of Colorado at Boulder, and a master's degree in Business Administration from Texas Christian University.

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David Richardson

X-59 Program Director Lockheed Martin Skunk Works®

David (Dave) Richardson is the program director leading the overall Lockheed Martin engineering, production and flight test team of the X-59 Low-Boom Flight Demonstrator Program. Originally from Reno, NV, Mr. Richardson grew up flying as the son of a bush pilot and joined Lockheed Martin's Advanced Development Programs (Skunk Works®) 30 years ago as a conceptual designer in Burbank, CA. His career has spanned responsibilities as design lead, air vehicle lead, chief engineer, project manager, technology portfolio director and program director. Over his career, Mr. Richardson has worked fighter, transport, patrol and bomber programs, as well as rotary wing, lighter-than-air and unmanned systems.

Mr. Richardson holds a master's degree in Mechanical Engineering from Brigham Young University and speaks French and Tahitian. He and his wife, Debra, live in Lancaster, CA and have four, adult children and six grandchildren. Aside from his passion for airplanes, his interests include photography, astrophotography, backpacking, fishing and home improvement.

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Dr. Michael Buonanno

X-59 Air Vehicle Lead
Lockheed Martin Skunk Works®

Dr. Michael Buonanno is the Air Vehicle lead for the X-59 experimental aircraft at Lockheed Martin Skunk Works in Palmdale, CA. In this role he coordinates the technical development of the X-plane design currently being developed under contract with NASA. Prior to this role, Mike served as Program Manager for the activities that immediately preceded the X-59 and NASA's Quesst mission, including the Low Boom Flight Demonstrator Concept Formulation and Refinement studies, as well as the N+2 Supersonic Validations program.

Dr. Buonanno has 15 years of industry experience as a conceptual design engineer at Skunk Works. In that time he has led or supported a diverse array of aircraft development programs, including small UAVs, solar-powered aircraft, and other programs. Since 2012 his work has been focused on advancing the technology required to reduce the sonic boom that has been historically associated with supersonic overland flight.

Prior to joining Lockheed Martin in 2006, Mike was a graduate research assistant at the Aerospace Systems Design Laboratory at Georgia Tech where he studied methods to improve the conceptual design process by facilitating a more thorough exploration of the design space. He received his Bachelor's degree in Aerospace Engineering from the Illinois Institute of Technology, and earned Master of Science and Doctorate degrees in Aerospace Engineering from Georgia Tech.

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National Aeronautics and Space Administration

Catherine M. Bahm

Low Boom Flight Demonstrator Project Manager

Catherine M. Bahm is the project manager for the Low Boom Flight Demonstrator project at NASA's Armstrong Flight Research Center in Edwards, California. She was appointed to this position in July 2022 after serving as the deputy project manager since October 2017. Bahm manages the effort to design, build, and test the X-59 aircraft, which will use quiet supersonic technologies to fly over communities as part of NASA's Quesst mission.

Experience

In 2015, Bahm became the deputy lead for the Orion Flight Test Management Office Systems Engineering and Integration Team for Ascent Abort 2. She served as NASA Armstrong's deputy project manager for the Orion Abort Flight Test project from 2005 to 2010. She was also the PA-1 (Pad Abort-1) deputy systems engineering integration team lead. Her primary responsibilities included the technical coordination and system integration efforts across the diverse Orion Abort Flight Test team for PA-1.

In 2010, Bahm was stationed at NASA Headquarters to support the Office of Chief Technologist in the Crosscutting Capability Demonstrations Division as part of a year-long detail. Her assignment included supporting the formulation and management of the Technology Demonstration Mission Program and the Flight Opportunities Program. Following her detail, she remained at NASA Headquarters from 2011 to 2015 as the deputy program director for the Integrated Aviation Systems Program (previously known as Integrated Systems Research Program) in the Aeronautics Research Mission Directorate.

Bahm's career with NASA began as a cooperative education student in 1993 when she worked in the structures and aeronautics branches at NASA Armstrong (then Dryden). At that time, she participated in sonic boom research activities. In 1995, Bahm was hired as a flight controls engineer and during the next 10 years supported projects such as HARV (F-18 High Alpha Research Vehicle), X-33, X-38, and X-43A. She served as the X-43A Hyper-X Flight 2 lead controls engineer and Flight 3 deputy chief engineer.

Education

Bahm received bachelor's and master's degrees in aeronautical engineering in 1995 and 2001, respectively, from Texas A&M University.

Honors

Her recognitions include a NASA Exceptional Achievement Medal, NASA Space Flight Awareness Leadership Award, NASA Systems Engineering Excellence Award, and the NASA Dryden Peer Award for Supervisor/Manager/Leader in 2010.

National Aeronautics and Space Administration

Jay Brandon

X-59 Chief Engineer | Low Boom Flight Demonstrator Project

As chief engineer of the Low Boom Flight Demonstrator project, Jay Brandon oversees the NASA technical team and systems engineering functions, and coordinates with Lockheed Martin's technical team to ensure the X-59 is a safe and reliable airplane.

Experience

During his 38 years with the agency, Brandon has worked on many airplane configurations using wind tunnels, piloted simulation, and flight test campaigns. He has also worked on space technologies, such as NASA's ARES 1-X rocket, and has provided NASA with data to improve the design and safety of the next generation of American spaceflight vehicles.

Brandon holds a U.S. patent on techniques to develop global nonlinear aerodynamic mathematical models onboard an aircraft.

Brandon holds an airline transport pilot certificate, has flown more than 50 types of aircraft, and is a member of the Society of Experimental Test Pilots.

Education

Brandon earned both a bachelor's degree and a master's degree in aerospace engineering from the University of Kansas in Lawrence, Kansas. He is also a graduate of Class 98 B of the National Test Pilot School in Mojave, California.

Honors

Brandon has received many awards and recognitions throughout his career, including the American Institute of Aeronautics and Astronautics 2011 National Engineer of the Year Award, the NASA Exceptional Service Medal, the NASA Exceptional Engineering Achievement Medal, and the NASA Exceptional Technology Achievement Medal.

National Aeronautics and Space Administration

Peter Coen

Quesst Mission Integration Manager

Peter Coen brings 40 years of supersonic research experience to his role as the Quesst mission integration manager. In this role, Coen is responsible for ensuring that Quesst mission elements, including the X-59 aircraft development, acoustic validation, and community testing, remain coordinated and on track to deliver data on community response to quiet supersonic flight.

Experience

Previously, Coen managed the Commercial Supersonic Technology project in NASA's Aeronautics Research Mission Directorate. In that role, Coen led a team from the agency's four Aeronautics research centers in the development of tools and technologies for a new generation of quiet and efficient supersonic civil transport aircraft.

Coen has studied technology integration in practical designs for many different types of aircraft and has made technical and management contributions to all of NASA's supersonic-related programs during the past 30 years. Among the projects Coen worked on was the NASA Shaped Sonic Boom Demonstration, which used a modified F-5E Navy fighter to prove that the fundamental concepts required to reduce sonic boom noise would work in flight.

Coen has also been instrumental in building a consensus for new standards for quiet supersonic flight over land through engagement with external organizations, such as aerospace companies, the Federal Aviation Administration, and the International Civil Aviation Organization.

Coen is also a licensed private pilot with his own airplane.

Education

Coen earned a bachelor's degree in aerospace engineering from the Polytechnic Institute of New York University in Brooklyn, New York. He earned a master's degree in aeronautical engineering from George Washington University in Washington, D.C.

Honors

Coen has received numerous honors and awards, including two NASA Outstanding Leadership Medals. He is an associate fellow of the American Institute of Aeronautics and Astronautics.

National Aeronautics and Space Administration

Walt Silva, Ph.D.

Senior Research Scientist | X-59 Structures Lead

Walt Silva brings more than 30 years of aerospace research experience to his role as NASA's X-59 structures lead. Silva ensures the design, build, and testing of the X-59 experimental aircraft structures meet NASA requirements, and that the airplane will handle the anticipated loads during flight.

Experience
Silva's experience includes research in the fields of unsteady aerodynamics, structural dynamics, aeroelasticity, reduced-order models, nonlinear dynamics, and flutter testing. He performed aeroelastic analyses of several aircraft, including the experimental X-Wing vehicle.

Silva holds a patent for a technology that dramatically speeds up computational modeling of aircraft aeroelasticity.

Previously, Silva worked for the Grumman Aerospace Corporation, now part of Northrop Grumman, in the Propulsion group/Advanced Systems group, where he performed advanced configuration designs.

In addition to serving as a senior research scientist at NASA's Langley Research Center in Hampton, Virginia, Silva is an adjunct professor at the College of William & Mary in Williamsburg, Virginia, and at Old Dominion University in Norfolk, Virginia. He also taught several short courses on aeroelasticity at national and international organizations.

Education
Silva graduated from Boston University with a bachelor's degree in aerospace engineering. He received his master's degree in aerospace engineering from the Polytechnic Institute of New York University in Brooklyn, New York. He earned his Ph.D. in applied mathematics from the College of William & Mary in Williamsburg, Virginia.

Honors
Silva's honors include a NASA Exceptional Achievement Medal and a Space Act Award. He was also named a NASA Floyd Thompson Fellow and an associate fellow of the American Institute of Aeronautics and Astronautics.