Program of Events

1:30 - 2:30: **Sign in / Networking**

2:30 - 2:35: **Welcome**

Dr. Hisham Alnajjar, Interim Director, NASA CT Space Grant

2:35 - 3:10: **Panel Discussion: Multiscale Metamaterial Research Laboratory**

University of Hartford: Dr. Brian Wells,
Students: Alex Cooke-Politikos, Kyle Eckert,
Nicholas Krupa, Parker LaFramboise,
Andrew Rittenberg, Frank Villani, Thomas Yonkers

3:10—3:30: **Awarding of Certificates**

Dr. Hisham Alnajjar, Interim Director, NASA CT Space Grant

3:30 - 4:00: **Meet & Greet/ Poster Presentations/ Tour the Museum**

For more information, please stop by the NASA CTSG table to speak with a member of our team

Thank you to our host, New England Air Museum

NASA CONNECTICUT ✦ SPACE GRANT ✦ CONSORTIUM ✦ est. 1991

NASA Connecticut Space Grant Consortium

Fall 2025 Grants Expo

Friday, November 7, 2025 1:30 - 4:00 PM

New England Air Museum

Www.CTSpaceGrant.org

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A Message from the NASA CTSG Director

Welcome to the NASA Connecticut Space Grant Consortium Grants Expo. The CTSGC team and I are grateful you came to this wonderful venue to honor our recent student and faculty awardees. We hope that you will take time to visit each poster and speak with the students and faculty who have worked hard to be here today. They are excited to share their work with you.

The mission of NASA CTSGC is to inspire and engage people of all ages and backgrounds in areas related to NASA's missions. Today's panel are members from the University of Hartford's Multiscale Metamaterial Research Laboratory. CTSGC has enabled these students to turn classroom learning into hands-on research that directly supports NASA's mission. Through the Multiscale Metamaterial Research Laboratory, they design and fabricate advanced metamaterial devices for space communication and imaging, gaining skills in experimental physics, additive manufacturing, and computational modeling. These experiences not only advance cutting-edge research but also cultivate the technical and professional competencies essential to NASA's future workforce.

After enjoying the panel discussion and visiting with our student and faculty researchers, please take time to explore the museum.

Thank you again. I hope you enjoy your time at the CTSG Expo, and the New England Air Museum. This is a great venue, and we are honored to be here today.

Dr. Hisham Alnajjar
Interim Director, NASA CT Space Grant

Spring 2026 Call for Applications

Tentative Application Date: March 2, 2026 —April 29, 2026

Faculty Grants:

- Research, Project
- STEM ED Research & Programming
- Faculty Travel
- Curriculum Development

Student Grants:

- Research Fellowships: UG & Graduate
- Student Project
- Travel Grants
- Scholarships: UG (4 year), CC, CC Transfer

Internships:

- NASA Center Internships (different application dates) - intern.nasa.gov
- CTSGC in-state: Industrial, Educational & Technical

Word Search

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C	K	P	G	E	G	D	N	R	A	K	W	N	B	C	J	H	I	Q	A	T	L	E	V	A
Q	Y	O	Z	B	P	E	E	M	M	R	U	S	U	N	E	A	U	R	I	A	B	A	P	N
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Y	Y	U	D	I	X	C	S	H	U	T	T	L	E	P	S	P	N	C	N	B	R	I	C	E
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C	R	S	B	J	R	S	S	A	U	C	C	H	K	K	B	B	D	I	A	E	D	O	E	R
A	X	J	O	X	S	H	E	B	W	C	O	N	C	O	U	R	S	E	A	Y	B	T	T	I
V	U	X	A	A	I	Z	C	K	I	X	O	Z	V	X	E	H	J	V	T	E	Q	M	D	K
U	Q	O	F	R	J	Q	U	O	E	U	I	Q	V	M	T	V	X	C	X	U	Z	B	O	B
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O	B	N	X	E	T	E	E	V	F	B	Q	X	Z	A	P	C	H	A	T	J	I	A	B	A

Departures
Runway
Attendant
Lounge
Concourse
Delay
Gate
Terminal
Security

Passport
Pilot
Airplane
Baggage
Shuttle
Arrival
Ticket
Snacks

Visit us at www.neam.org

Enjoy exploring the museum and Expo displays to complete this Scavenger Hunt!

Museum Lobby

☐ How long did the tornado that hit Bradley Air Museum on October 3rd, 1979 last for? ____________________

☐ How many aircraft survived the tornado on October 3rd, 1979 with only minor damage to them? HINT: Look at the map!

____

Military Hangar

☐ True or False: The Pratt and Whitney J57 display engine is forward-facing compared to the F-100 Super Sabre.

____

Civil Aviation Hangar

☐ The 303 Squadron flew three aircraft that all had a Rolls-Royce Merlin engine. What are the names of these airplanes?

____

☐ What was the date of Silas Brook's last hot air balloon ascension? ____________________

B-29 Hangar

☐ What is the name of Connecticut's state aircraft?

____

☐ Which airplane in the B-29 Hangar was used by the Tuskegee Airmen for pilot training? ____________________

Scan the QR code below to learn more about the history of the New England Air Museum:

Faculty Poster Presentations:

Dr. Mihai Duduta
University of Connecticut
Conference support for workshop "Enhancing Dexterity in Space Environments: The Potential of Soft Robotic Systems"

Dr. Mihai Duduta
University of Connecticut
Low-Profile Haptics for Space Applications Using Dielectric Elastomer Actuators

Dr. Ted Efremoff
Central Connecticut State University
Exhibition of Artworks and Research focusing on Climate Change on Climate Change
With: Kathleen Gauthier, Priya Green, Courtney Silvia, Charles Button

Dr. Michelle Fabiani
University of New Haven
Automated Algorithmic Archaeological Looting Detection
With: Dr. Shivanjali Khare, Jafar Vohra, Thomas Powell , Kalyna Yurchuk

Prof. Mehrdad Faezi
CT State Community College – Manchester
Quadcopter Challenge Sky Knights 2025
With: Ibraheem Rana, Toni Nguyen, Casey Woodward

Dr. Natalia Gonzalez Pech
Wesleyan University
Synthesis of clusters of Fe3O4 and NiO nanoparticles for water reclamation
With: Ella Moses, Finn Guillemin

Dr. Naser Haghbin
Fairfield University
Development and Evaluation of a Single-Camera Robotic Pick-and-Place System for Dynamic Environments
With: John McKenna, John Chiodo, Michaela Nanna, Nicole Reagan, Joseph Maucieri

Prof. Jeremy Hernandez
CT State Community College – Asnuntuck
Quadcopter Challenge
With: Archimedes Crew: Michael Morales, Efehan Oksuz, Christopher Pittman, Josue Rivera

Prof. Douglas Hoffman
CT State Community College – Northwestern
2024-2025 Community College Quadcopter Challenge
With: Douglas Mooney, Devon Binette, Trinity Binette, Jonah Crosby, John Ellis, Don Capuano, Tristian Prior

Dr. Elliott Horch
Southern Connecticut State University
Toward Imaging Stellar Surfaces with the Southern Connecticut Stellar Interferometer
With: Sebastian Lucero, Max Martone, and Riley Barrett

Dr. Shivanjali Khare
University of New Haven
SPARC: Spectrally-Guided Pseudolabeling for RGB-Only Semantic Segmentation of Urban Land Cover
With: Yaw Nimo-Agyare, Ellie A Hurdis

Prof. Peter Kootsookos
CT State Community College – Middlesex
Middlesex Quadcopter
With: Cassidy Milfort, Jake Hatton, Andrei Foristall

Dr. Gengyun Le-Chan
University of Hartford
Effectiveness of game-based learning on classroom engagement and knowledge retention in architectural and biomedical science undergraduate students
With: Somaye Seddighikhaviak, PhD, Barbara Sanchez, PhD, Bhavika Sharma

Dr. Emily Levy
Sacred Heart University
You are what you eat: Integrative effects of food supplementation on native and invasive backyard birds
With: Alexandria M. Lovasi, Vitalina Pivtorak, Lena Seerosh, Liliana Sosnowski, Cassandra Vallon, Kate Vincent & Brianna Nieves

Prof. Danny DaXian Liang
CT State Community College – Tunxis
Tunxis CCQC
With: Christian Bonanni, Noah Packard, Carson Lewis

Dr. Akshay Mathur
Fairfield University
Adversarially-Stable Cyber Defense for Anomaly Detection in Satellite Communications
With: Sidike Paheding (Co-PI), Jan Salafia, Sean Salafia

Prof. William McManus
CT State Community College – Quinebaug Valley
Community College Quadcopter Challenge - Quinecopters
With: Trajan Aceto, Nick Apley, Victoria Schroth, Liliana WongKam

Prof. Enrico Obst
University of Hartford
RockOn! Team (2025)
With: Joseph Gary, Ahmed Gadit

Prof. Enrico Obst
University of Hartford
RockSat-C Team (2025)
With: Jaylen Brown, Nicholas Krupa, Michael Robert, Ajani Rose, Kiden Scruton

Dr. Sidike Paheding
Fairfield University
Exploring Domain Adaptation for Martian Landslide Mapping
With: Ryan Denke

Dr. Sidike Paheding
Fairfield University
Transferring Knowledge Across Planets: Domain Adaptation for Martian Surface Mapping
With: James Haimoff, Angela Biselli, Ryan Denke

Dr. Jani Pallis
University of Bridgeport
Nationwide Ballooning Project - Continuation Project Solar Maximum Radiation Project
With: Huy Huong, Sushma Gudi, Rudra Mitra, Juan Urrea Vargas, Mohammad Al-Torzi, Daria Howard, Umberto Sfregoli, Scott Goodman, Karissa Bird, Adhanari Edward, Natalia Belfiore, Ph.D., Prof. Nicolas Zoghb, Larry Reed, Gary Moyhe

Dr. David Shekhtman
Fairfield University
Shear Stress and Angle-of-Attack Flow Stability Measurements on Flight Geometries in Hypersonic Flow
With: Charlotte Savigny, John Cummings, Molly Devine, Findley Lacey, George Haithwaite

Dr. Xin Shen
University of Hartford
Multi-Perspective 3D Sensing-Based Point Cloud Denoising and Optimized Optical Display
With: Ryan Haggerty, and Vanden Haviland

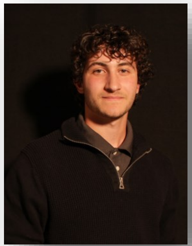
Dr. Renee Sher
Wesleyan University
Wesleyan Girls in Science Summer Camp 2025

Dr. Kiwon Sohn
University of Hartford
Kinematic Reconfigurable Link Development for Humanoid's Task Execution Capability Improvement
With: Dennis Tekyi, Sitara Swaby, Oluwatemisola Sosanya, Tim Nguyen

Parker LaFramboise is a first-generation college student and Mechanical Engineering major at the University of Hartford whose work spans manufacturing, metamaterial design, microwave sensing, and aerospace applications. As a NASA Connecticut Space Grant awardee, his research focuses on developing complementary metamaterial split ring resonator sensors for biomedical diagnostics to support astronaut health during spaceflight. Through his interdisciplinary approach combining materials science, electronics, and mechanical design, Parker strives to advance NASA's mission by creating innovative engineering solutions that bridge innovation, human health and space exploration.

Andrew Rittenberg is a third year student at the University of Hartford studying math and physics. His work focuses on the theoretical background for the research conducted in the Multiscale Metamaterial Research Laboratory (MMRL). He is currently focused on developing resin based flat lenses using transformation optics. Using the skills he has gathered working in the MMRL, he plans to pursue a career in academia where he can play a role in an undergraduate research lab.

Frank Villani is a Mechanical Engineering student at the University of Hartford whose work bridges advanced manufacturing, materials science, and aerospace technology. As a NASA Connecticut Space Grant awardee, his research supports the development of next-generation additive manufacturing methods for creating conductive and high-dielectric materials used in metamaterial optics and aerospace systems. Through his leadership in university research initiatives and student rocketry, Frank aims to advance NASA's mission of innovation in exploration and engineering design.



Tomas Yonkers is a third-year student at the University of Hartford studying physics. He plays a primary role in the design of radio frequency (RF) simulations that are fundamental to the fabrication of microwave beam steerers within the Multiscale Metamaterial Research Lab (MMRL). Tomas also played a key role in enabling the participation of a high-school student in the MMRL. Gaining experience in the data analysis of S-parameters for the understanding of beam steerer design and fabrication, he has accrued interest to continue exploration and advancement of radio frequency communications and sensing technology.

Alex Cooke-Politikos recently graduated from the University of Hartford with dual degrees in Physics and Computer Science, and minors in French and Mathematics. He is focused on theoretical background and simulation work, as well as foundational research in the flat lens design process. He also produced an Honors Thesis based on MMRL research. Currently, he assists with simulation work, as well as training junior members of the lab. Alex aspires to apply skills learned from the MMRL towards a doctorate degree in Astrophysics, and a career in academia.

Kyle Eckert is a third-year Electrical Engineering student at the University of Hartford. His work involves measurement system construction, calibration, and operation, including the use of the optics table and Vector Network Analyzers (VNAs) for material characterization and experimental analysis. He is pursuing a career in RF engineering with a focus on high-frequency circuit design and fabrication, aiming to apply the skills and experience gained through the Metamaterials Research Lab toward developing advanced RF systems for next-generation communication technologies.

Nicholas Krupa is a third-year Electrical Engineering major with minors in Physics and Mathematics. His research focuses on the design and fabrication of metamaterial-based antennas and reflectors for satellite communication, utilizing advanced 3D printing and PCB technologies. Outside the lab, Nicholas is the founder and president of AURORA, the University of Hartford's high-power rocketry club, and served as commander of the university's NASA RockSat-C 2025 team, leading hands-on aerospace research projects. He plans to pursue a career in aerospace research, specializing in microwave and space communication systems.

Dr. Elizabeth Stone
Fairfield University
Environmentally-Sustainable Synthesis of Xenobiotic Peptide Therapeutics
With: Eleanor Feuster and Kacey McGorry

Dr. Yolanda Valencia
Notre Dame High School West Haven CT
Mission to Mars: Designing and Operating LEGO Mars Rovers and Drones to Simulate NASA Missions
With: Gabriel Roberts, Edward Thomas, Sophie Valencia, Valentina Quijano

Dr. Sanaz Vajedian
Wesleyan University
Monitoring Vegetation Dynamics in Borderland Ecosystems Using Integrated Satellite Imagery and Cloud-Based Analysis Platforms
With: Helen Poulos, Avika Pande, George Schunk

Dr. Haoyu Wang
Central Connecticut State University
Automated Robotic Inspection System for Aerospace Airfoils Based on 3D/2D Vision and AI
With: Rumman Shahzad, Edilianis Gonzalez, Mathew Zamaria, Nathan Feinberg

Dr. Brian Wells
University of Hartford
The University of Hartford Multiscale Metamaterial Undergraduate Student-Faculty Research Summer 2025
With: Kyle Eckert, Tomas Yonkers, Elijah Kearney, Andrew Rittenberg, Parker LaFramboise, Frank Villani

Dr. Brian Wells
University of Hartford
Advancing CubeSat Technologies through the Design and Fabrication of Metamaterial-Based Devices for Space Imaging and Communication
With: Andrew Rittenberg, Nicholas W. Krupa, Frank Villani, Anthony Williams, Alexandros C. Cooke-Politikos, Kyle Eckert, Tomas Yonkers, Katherine E. Boehme, Elia Bllani, John B. Gouveia

Dr. Jacob Werblow
Central Connecticut State University
Planning, Piloting, and Assessing the Level-II NASA Astro Camp Teacher Certification
With: Chris Stone

Dr. Xingguo Xiong
University of Bridgeport
Machine Learning based Wildfire Detection Using Satellite Imagery and Drone Surveillance
With: Navarun Gupta, Ahmed Sayed, Luis Mercedes, Youssef Hassan, Riya Regmi, Rudra Mitra, Shariar Islam Saimon, Vikrant Raghuvariya Kottaya, Shalini Jada, Gowtham Raj Vuppari, Lakshmi Aishwarya Malladi, Sailesh Adhikari, Patricia Bermeo, Intiser Islam

Dr. Jinghui Yang
University of Hartford
Body Position Influences the Accuracy of The Automated Arterial Occlusion Pressure Measurement

Student Poster Presentations:

Yuriy Bilous
Central Connecticut State University
Automated Pneumatic Sorting System
With: Liam Derick, Patrick Smith, Jacob Delorenzo

Kyle Caldwell
Southern Connecticut State University
Synthesis of Novel Small Molecules for Inhibiting Ferroptosis in Traumatic Brain Injury

Eric Dillner
Fairfield University
Travel to Materials Research Society (MRS) Spring 2024 Meeting for Presentation of TPMS Structure and PCM as Aerospace Thermal Management Systems Research

Anatol Gogoj
University of Connecticut
Ultraresilient Dielectric Elastomer Actuators for Extreme Environments
With: Alexander White, Tirth Thakar

Tarek Ibrahim
University of New Haven
Synthesis of Fully Biomass-Derived, NIR-Triggered Self-Healing Polymer Materials for Space Applications

Nicholas Krupa
University of Hartford
Summer Internship: Connecticut Science Center

Nicholas Krupa
University of Hartford
Phased Array Antenna Design, Fabrication, and Application for Satellite and Space Communication
With: Kyle Eckert

Annika LeBoeuf
University of Hartford
Level 2 High-Power Rocket Certification for AURORA
With: Liam Gordon, Anthony Williams

Doria Lukasik-Drescher
Sacred Heart University
Project Luna

Charlotte Michaud
University of New Haven
Synovel Summer Internship

Katherine Morin
Wesleyan University
Characterization of the Alteration of Volcanic Glasses Exposed to Venus Surface Conditions
With: Alison Santos, Julia Semprich, Martha Gilmore

Kenny Phan
Yale University
Light Curve Analysis of the Ice Giants via TESS
With: Malena Rice

Edward Pomianek
University of Connecticut
Tunable Surfaces Capable of De-icing and Anti-fouling for Space Flight and Exploration

Eduardo Rodriguez
Trinity College
Sign Language Glove with 3D Visual Device
With: Daniel Jaramillo

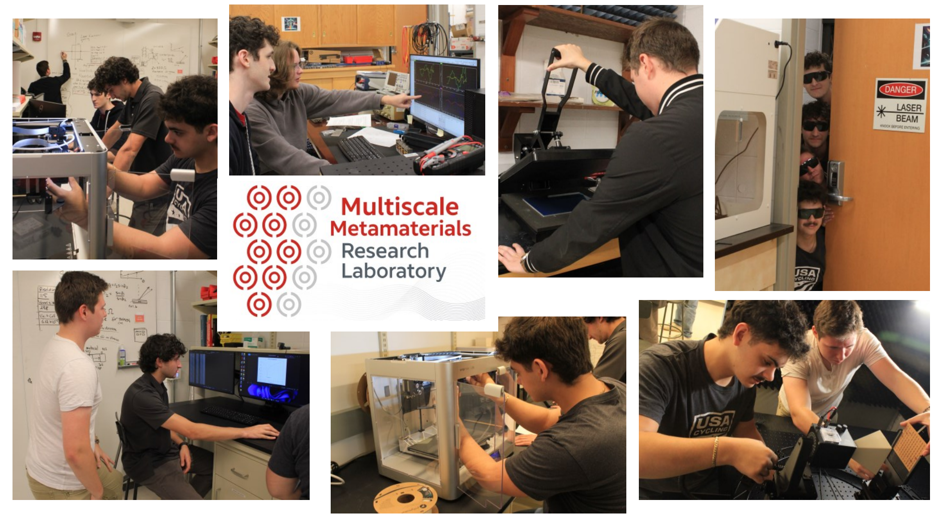
Emily Sevigny
University of Connecticut
Oxford Performance Materials Internship

Theodore Smith
University of Connecticut
The Coronal Line Region of Active Galactic Nuclei
With: Logan Fries, Jonathan Trump

Jack Thompson
University of New Haven
Oxford Performance Materials Summer Internship
With: Emily Sevigny

Grace Xu
University of Connecticut
Fishin' Gears

Multiscale Metamaterial Research Laboratory



Dr. Brian M. Wells is an Associate Professor of Physics at the University of Hartford and the Associate Director of the NASA Connecticut Space Grant Consortium. He also serves as Director of the Multiscale Metamaterial Research Laboratory, where his work bridges computational physics, photonics, and advanced manufacturing to develop next-generation metamaterials for communication, imaging, and sensing applications. His research integrates theoretical modeling, 3D-printed device fabrication, and electromagnetic characterization across microwave and optical regimes. Dr. Wells has authored more than thirty peer-reviewed publications and a U.S. patent on nanowire metamaterial interference filters, and he has received multiple NASA Faculty Research and Faculty-Undergraduate Research Grants supporting innovative CubeSat and metasurface technologies.

Dedicated to mentorship and experiential learning, Dr. Wells has supervised more than 25 undergraduate and community-college researchers through NASA-funded projects, with several earning independent grants and conference awards. His outreach extends to high school STEM internships and public engagement events promoting space science throughout Connecticut. As a faculty leader and Space Grant administrator, he is committed to advancing hands-on research opportunities that connect students directly to NASA's mission of exploration and discovery.