VERIFICATION
VALIDATION
AND
UNCERTAINTY
QUANTIFICATION

VVUQ 2026

VERIFICATION, VALIDATION, AND UNCERTAINTY QUANTIFICATION SYMPOSIUM

PROGRAM

Committee Meetings:
May 18-19, 2026

Symposium:
May 20-21, 2026

VANDERBILT UNIVERSITY OF ENGINEERING
NASHVILLE, TN, USA

https://event.asme.org/VandV

The American Society of Mechanical Engineers®
ASME®

ASME®
SETTING THE STANDARD

ASME VVUQ Symposium 2026 Program and Information

Vanderbilt University | May 20-21, 2026

Table of Contents

Welcome from Symposium Organizers

Valued veterans and visitors alike, welcome to the venerable venue of Vanderbilt University. Through this venture, the VVUQ Symposium convenes a visionary and vibrant forum for verification, validation, and the vigilant quantification of uncertainty. In this vital gathering, we venture to examine variables, vet assumptions, and advance the veracity of modeling and simulation through vigorous credibility. As a vanguard community, we value every voice and the variety of perspectives they bring. May this forum serve as a vessel for vibrant dialogue, diverse viewpoints, and valuable collaboration as we collectively navigate the vast and variable landscape of VVUQ.

Joshua Kaizer, Symposium Chair

VVUQ Symposium 2026

Schedule at a Glance

Monday 5/18/26	Tuesday 5/19/26	Wednesday 5/20/26	Thursday 5/21/26
VVUQ 2026 Symposium Committee Meetings Check APP for times and room	VVUQ 2026 Symposium Committee Meetings Check APP for times and room	Breakfast 8:00 am-8:45 am Featheringill Hall 106, 1st Fl	Breakfast 8:00 am-8:45 am Featheringill Hall 106, 1st Fl
		VVUQ 2026 Symposium Keynote Speaker Wendy S. Parker Department of Philosophy Virginia Tech Wednesday May 20, 2026 9:15 am - 10:15 am Featheringill Hall 134 1st Fl.	VVUQ 2026 Symposium Keynote Speakers Dr. Dustin Coleman Sikorsky, a Lockheed Martin Company & Michael A. Marshall, PhD Dragonfly Mobility Flight Performance Lead, Space Exploration Sector Johns Hopkins Applied Physics Lab Thursday May 21, 2026 9:15 am - 10:15 am Featheringill Hall 134 1st Fl.
		Coffee Break 10:15 am - 10:30 am Atrium, 1st Fl	Coffee Break 10:15 am - 10:30 am Atrium, 1st Fl
		Technical Sessions 10:30 am - 12:35 pm Featheringill Hall 132 Featheringill Hall 136 Featheringill Hall 138	Technical Sessions 10:30 am - 12:35 pm Featheringill Hall 132 Featheringill Hall 136 Featheringill Hall 138
		Lunch 12:45pm-1:45pm Featheringill Hall 106, 1st Fl	Lunch 12:45pm-1:45pm Featheringill Hall 106, 1st Fl
		Technical Sessions 1:45 pm - 3:25 pm Featheringill Hall 132 Featheringill Hall 136 Featheringill Hall 138	Technical Sessions 1:45 pm - 3:25 pm Featheringill Hall 132 Featheringill Hall 136 Featheringill Hall 138
		Coffee Break 3:00 pm - 3:45 pm Atrium, 1st Fl	Coffee Break 3:00 pm - 3:15 pm Atrium, 1st Fl
		Technical Sessions 3:45 pm - 5:30 pm Featheringill Hall 132 Featheringill Hall 136 Featheringill Hall 138	Cookies with an Expert Chris Roy Sarah Kieweg Aaron Koskelo Bill Oberkampf Uma Balakrishnan Jim Ferguson Vincente Romero Brandon Wilson Kevin Dowding Brian Freno 3:15 pm - 4:30 pm, Atrium
		Networking Reception Featuring Poster Presentations 5:30 pm - 7:00 pm Atrium	
		End of day one	End of symposium

Keynotes

Wendy Park

Department of Philosophy

Virginia Tech

Wednesday May 20, 2026

9:15 am - 10:15 am

Featheringill Hall 134

Dr. Dustin Coleman

Sikorsky, a Lockheed Martin Company &

Michael Marshall, PhD

Johns Hopkins Applied Physics Lab

Thursday May 21, 2026

9:15 am - 10:15 am

Featheringill Hall 134

Committee Meeting Schedule

VVUQ 2026 Symposium
In-Person Committee Meeting Schedule
May 18 & 19, 2026
Vanderbilt University
Featheringill Hall, School of Engineering
400 24TH AVE S, NASHVILLE, TN 37240

Times (ET)	Monday, May 18, 2026		
9:00	VVUQ 40 Computational Modeling of Medical Devices 9:00 am - 5:00 pm Room Featheringill Hall 300	VVUQ 70 VVUQ for AI/ ML Models 9:00 am - 12:00pm Room Featheringill Hall 209	
10:00			
11:00			
12:00			
1:00		VVUQ 30 Computational Simulation of Nuclear System Thermal Fluids Behavior 1:00 pm - 5:00pm Room Featheringill Hall 209	VVUQ 60 Computational Modeling in Energy Systems 1:00 pm - 5:00pm Room Featheringill Hall 313
2:00			
3:00			
4:00			
5:00			

	Tuesday, May 19, 2026		
9:00	VVUQ 40 Computational Modeling of Medical Devices Working Group Meetings 9:00 am - 4:30 pm Room Featheringill Hall 300	VVUQ 10 Computational Solid Mechanics 9:00 am -12:00 pm Room Featheringill Hall 209	VVUQ 20 Computational Fluid Dynamics and Heat Transfer 9:00am -12:00pm Room Featheringill Hall 300
10:00			
11:00			
12:00			
1:00		VVUQ 50 Computational Modeling in Advanced Manufacturing 1:00pm - 4:30pm Room Featheringill Hall 209	Joint VVUQ 10/20 Committee Meeting 1:00pm - 4:30pm Room Featheringill Hall 298
2:00			
3:00			
4:00			
5:00			
6:00	VVUQ Standards Committee Executive Session 5:00pm - 7:00pm Room Featheringill Hall 209		
7:00			

VERIFICATION VALIDATION AND UNCERTAINTY QUANTIFICATION

VVUQ 2026

VERIFICATION, VALIDATION, AND UNCERTAINTY QUANTIFICATION SYMPOSIUM

COMMITTEE MEETINGS: MAY 18-19, 2026
SYMPOSIUM: MAY 20-21, 2026

VANDERBILT UNIVERSITY OF ENGINEERING | NASHVILLE, TENNESSEE, USA

Cookies with an Expert

New to the field? Changing careers? Just curious as a student or postdoc? Join us for cookies and candid conversation with an expert. No presentations. No jargon. Just informal discussion in small groups with one expert.

Sign up for your slot at the registration desk on site; there is a 10-person cap per expert.

Kevin Dowding
Sandia National Laboratories

Christopher Roy
Virginia Tech

William Oberkampf
Oberkampf Consulting

Aaron Koskelo
Los Alamos National Laboratories

Brian Freno
Sandia National Laboratories

Uma Balakrishnan
Sandia National Laboratories

Brandon Wilson
Los Alamos National Laboratories

Vicente Romero
Sandia National Laboratories

Sarah Kieweg
Sandia National Laboratories

Jim Ferguson
Los Alamos National Laboratories

AMERICAN SOCIETY OF MECHANICAL ENGINEERS INTERNATIONAL ASME MISSION STATEMENT
ASME's mission is to advance engineering for the benefit of humanity.

ASME VISION STATEMENT ASME's vision is to be the premier resource for the engineering community globally.

AUDIOVISUAL EQUIPMENT IN SESSION ROOMS

All technical sessions rooms are equipped with a LCD projector and screen. Laptops will NOT be provided in the sessions. Presenters MUST bring their own or make arrangements in advance with the session chairs to share theirs.

SPEAKER READY ROOM

The speaker ready room is in Featheringill Hall 129 and is available to review and/or practice your presentation. A screen and LCD Projector will be provided. Daily hours are 7:00AM–5:00PM, Wednesday and Thursday.

BADGE REQUIRED FOR ADMISSION

All conference attendees must always wear the official ASME 2026 VVUQ badge to gain admission to technical sessions, and all other symposium events. Without a badge, you will NOT be allowed to attend any symposium activities.

CONFERENCE MEALS

Breakfast and lunch as well as breaks will be provided at the symposium. Be sure to join us on Wednesday evening for the networking reception in Featheringill Hall 106/ Atrium.

CONFERENCE APP

The symposium will utilize the ASME Events mobile app to enhance the experience for attendees and speakers in place of a printed program. Connect with Attendees, View Speaker Profiles, Access Session Information and more! Options may vary by event.

CONFERENCE PROCEEDINGS AND DIGITAL PAPERS

Each attendee will receive an email with a unique code to access digital copies of all the papers accepted for presentation at the conference. The official conference archival proceedings will be published after the conference and will not include accepted papers that were not presented at the conference. The official conference proceedings are registered with the Library of Congress and are submitted for abstracting and indexing and can be purchased. The proceedings are published in the ASME Digital Library. You will be provided with an individual link to the online papers via email. In the event you do not receive the email, you can message ConferencePubs@asme.org.

CONFERENCE REFRESHMENT BREAKS Morning and afternoon breaks will be provided in the on the Atrium on the First fl. Come and meet our exhibitors and join your fellow attendees for a few minutes of networking and discussion. The schedule is as follows:

Wednesday	10:15 AM - 10:30 AM & 3:30 PM - 3:45 PM
Thursday	10:15 AM - 10:30 AM & 3:00 PM - 3:15 PM
Cookie with an Expert	**3:15 PM – 4:30 PM**

EMERGENCY INFORMATION

If you are experiencing a health emergency, please dial 911. Vanderbilt University Police Department number, 615-322-2745. Use the Blue Light Call Box with an emergency phone that is conveniently located throughout the campus. Each phone has an emergency button that, when pressed, automatically dials the VUPD Communications Center

REGISTRANTS WITH DISABILITIES

Whenever possible, we are pleased to plan for registrants with disabilities. Advance notice may be required for certain requests. For on-site assistance, please visit the conference registration area and ask to speak with a conference representative.

Author Index

WEDNESDAY, 5/20/2026

03-01 Topics in VVUQ
5/20/2026
10:30 AM to 12:35 PM - Featheringill Hall 136

Chair: ***Jim Ferguson - Los Alamos National Laboratory***
Presentations:

Demonstrating Confidence in Predictive Modelling & Simulation for Diverse Applications in the Uk Nuclear Industry, VVUQ2026-185643
Technical Presentation Only
Ryan Tunstall - Rolls-Royce
Piers Denning - Rolls-Royce
Reece Corcoran - Rolls-Royce
Richard Latchford - Rolls-Royce

Consistency Management—the Expanding Rosetta Stone, VVUQ2026-185460
Technical Presentation Only
William Schindel - ICTT System Sciences
Nigel Taylor - MBDA UK Ltd

Multi-Fidelity Modeling and Uncertainty Quantification of Inverter-Based Resources in Integrated T&D Systems, VVUQ2026-183836
Technical Paper Publication
Abdul Shafae Mohammed - Clemson University
Sez Russcher - Clemson University
Moazzam Nazir - Clemson University
Gokhan Ozkan - Clemson University
Johan Enslin - Clemson University
Ramtin Hadidi - Clemson University

Verification, Validation, and Uncertainty Quantification in Practice VVUQ2026-183832
Technical Presentation Only
V. Gregory Weirs - Sandia National Laboratories

Applying Ai to VVUQ VVUQ2026-185774
Technical Presentation Only
Joshua Kaizer - U.S. NRC

07-01 Methods for Uncertainty Quantification, Sensitivity Analysis, and Prediction
5/20/2026
10:30 AM to 12:35 PM - Featheringill Hall 138

Chair: ***Uma Balakrishnan - Sandia National Laboratory***
Presentations:

Implementing Active Subspace Dimension Reduction for Surrogate Modeling in Uq: A Case Study Using a Crystal Plasticity Finite Element Model for Ti-6al-4v VVUQ2026-186616
Technical Presentation Only
Promit Chakroborty - Vanderbilt University
Ramesh Babu J. - The University of Oklahoma
Pranav Karve - Vanderbilt University
Sankaran Mahadevan - Vanderbilt University

Estimation of Neutron-Induced Fission Product Yield Uncertainties From Gamma Spectra Data With Bayesian Inverse Uncertainty Quantification, VVUQ2026-185713
Technical Presentation Only
Christopher Brady - North Carolina State University
Xu Wu - North Carolina State University

Model-Form and Calibration Process Related Uncertainties and Propagation for Anisotropic Plasticity and Damage Models, VVUQ2026-185378
Technical Presentation Only
Vicente Romero - Sandia National Laboratories
Andrew Stershic - Sandia National Laboratories-Livermore
Kyle Karlson - Sandia National Laboratories

Explainable Scientific Machine Learning for Data-Driven Turbulence, VVUQ2026-183614
Technical Paper Publication
Uma Balakrishnan - Sandia National Laboratories
William J. Rider - Sandia National Laboratories
Eric J. Parish - Sandia National Laboratories

Conformal Bounds of Dynamic Nuclear Reactor Operations Predictions With Difficulty Estimation, VVUQ2026-185401
Technical Presentation Only
Jaden Palmer - North Carolina State University
Ryan Stewart - Idaho National Laboratory
Xu Wu - North Carolina State University

13-01 Advanced Manufacturing
5/20/2026
10:30 AM to 12:35 PM - Featheringill Hall 132

Chair: ***Sankaran Mahadevan - Vanderbilt University***
Presentations:

Bayesian Estimation of Alloy Phase Fractions and Strains Using X-Ray Diffraction, VVUQ2026-185777
Technical Presentation Only
Pranav Karve - Vanderbilt University
Benjamin Ward - Vanderbilt University

Release and Applications of the ASME VVUQ 50.1-2026 "Guide to a Model Life Cycle Approach That Incorporates Verification, Validation, and Uncertainty Quantification", VVUQ2026-185618
Technical Presentation Only
Joe Hightower - Retired, The Boeing Company
William Schindel - ICTT System Sciences
Guodong Shao - National Institute of Standards and Technology (NIST)
Nigel Taylor - MBDA UK Ltd

V&V of Computational Fatigue Model for Additive Manufactured Structures With Aerospace Requirements, VVUQ2026-183693
Technical Presentation Only
Robert Tryon - VEXTEC
Animesh Dey - VEXTEC
Nathan Oliver - VEXTEC

Quantitative Validation of Process-to-Microstructure Models in Additive Manufacturing, VVUQ2026-185758
Technical Presentation Only
Arulmurugan Senthilnathan - Vanderbilt University
Pranav Karve - Vanderbilt university
Sankaran Mahadevan - Vanderbilt university

Indirect Inspection Methods for Aerospace Applications Based on Computational Models, VVUQ2026-185507
Technical Presentation Only
Joe Hightower (Retired) - IAQG 9138 Committee
Dan Fitzsimmons - IAQG 9138 Committee
Earnest Foster - IAQG 9138 Committee

08-01 VVUQ for Fluid Dynamics, Heat Transfer, and Energy Applications
5/20/2026
1:45 PM to 3:25 PM - Featheringill Hall 132

Chair: ***Justin Weinmeister - Oak Ridge National Laboratory***
Presentations:

Physics-Based Uncertainty Quantification Analysis for Subsonic Wind Tunnel Testing Using a Validated Cfd Model, VVUQ2026-185720
Technical Presentation Only
Adam Yonge - Synopsys
Zoran Dragojlovic - Synopsys
Kalyan Sharma - Synopsys
Valerio Viti - Synopsys

Progress With Discretization Error Transport Equations and Defect Correction, VVUQ2026-185651
Technical Presentation Only
William Jordan - Virginia Tech
Aniruddha Vikrama - Virginia Tech
Chris Roy - Virginia Tech

Verification, Validation, and Uncertainty Quantification of Trace Predictions for Natural Circulation Interruption in a Two-Loop Atlas Configuration, VVUQ2026-183708
Technical Paper Publication
Samah Albdour - Khalifa University
Nourah Alyammahi - Federal Authority for Nuclear Regulation (FANR)
Antonio Cammi - Khalifa University
Yacine Addad - Khalifa University

Physics-Based Computational Modeling of Marine-Aged Vhb 4910 Dielectric Elastomers for Adaptive Naval Systems, VVUQ2026-182744
Technical Paper Publication
Eugenia Stanisauskis Weiss - Naval Undersea Warfare Center, Division Newport
Emily Guzas - Naval Undersea Warfare Center, Division Newport

---

14-01 Digital Twins
5/20/2026
1:45 PM to 3:25 PM - Featheringill Hall 138

Chair: ***Seo Jeongwon - University of Texas Austin***
Presentations:

Supporting Capstone Design With Digital Twins, VVUQ2026-185770
Technical Presentation Only
David Schmidt - University of Pittsburgh

Calibration and Validation of High and Low Fidelity Simulations for Health Monitoring Live Digital Twin of Bearings, VVUQ2026-183652
Technical Paper Publication
Tristan Zonta - Ontario Tech University
Andrew Bondoc - Ontario Tech University
Ahmad Barari - Ontario Tech University

Nuclear Reactor Digital Twin Website - a Giant Leap Toward the Digital Frontier, VVUQ2026-180464
Technical Paper Publication
Jeongwon Seo - The University of Texas as Austin
Kevin Clarno - The University of Texas at Austin

Evaluating Confidence in Complex Engineering Models and Digital Twins, VVUQ2026-183479
Technical Presentation Only
Patrick Brewick - University of Notre Dame
Ruijia Wang - University of Notre Dame
Jennifer Pazour - Rensselaer Polytechnic Institute

03-02 Topics in VVUQ
5/20/2026
1:45 PM to 3:25 PM - Featheringill Hall 136

Chair: ***Jim Ferguson - Los Alamos National Laboratory***
Presentations:

Development of Defect Modeling Capability in Shocked Metal-on-Metal Systems, VVUQ2026-185765
Technical Presentation Only
Chelsey Hargather - Los Alamos National Laboratory

Assessment of Ship Responses in Wave Conditions: Recreation and Uncertainty Analysis of Experimental Data via Flow3d and Smartuq, VVUQ2026-183739
Technical Paper Publication
Christopher George - Texas A&M University
Nima Fathi - Texas A&M University

A Probabilistic Drop-Tower Validation for Human Body Modeling, VVUQ2026-186565
Technical Presentation Only
Sarah Shaffer - Southwest Research Institute
Jeremy Schap - Elemance
Nolan Norton - Elemance
Zach Hostetler - Elemance
Anup Pant - Southwest Research Institute
Lance Frazer - Southwest Research Institute
Matthew Davis - Elemance
Daniel Nicolella - Southwest Research Institute

Model and Simulation Risk, VVUQ2026-185775
Technical Presentation Only
Joshua Kaizer - U.S. Nuclear Regulatory Commission

02-01 VVUQ for Decision Makers
5/20/2026
3:45 PM to 5:00 PM - Featheringill Hall 136
Chair: ***Aaron Koskelo - Los Alamos National Laboratories***
Presentations:

Regulatory Dilemma: Deterministic vs Stochastic Requirements, VVUQ2026-185769
Technical Presentation Only
William Oberkampf - W L Oberkampf Consulting
Jeffrey Bodner - Medtronic Corporation

Quantifying Uncertainties in Modeling Choices for Time-Sensitive Applications, VVUQ2026-185749
Technical Presentation Only
Wendy Caldwell - Los Alamos National Laboratory

Incrementally Moving From Manual, Deterministic Simulations Toward Streamlined Vvuq Analyses Using Ansys Tools, VVUQ2026-185738
Technical Presentation Only
Adam Yonge - Synopsys
Alexis Wall - Ansys Government Initiatives (AGI)
Kalyan Sharma - Synopsys

Implicit Visualization of Epistemic Uncertainties by Using Simplified Pirt, VVUQ2026-185838
Technical Presentation Only
Kazumi Matsui - Yokohama National University
Yuki Fukutani - Yokohama National University
Chikako Natsumeda - Saga University
Takahiro Yamada - Yokohama National University

08-02 VVUQ for Fluid Dynamics, Heat Transfer, and Energy Applications
5/20/2026
3:45 PM to 5:00 PM - Featheringill Hall 132

Chair: ***Justin Weinmeister - Oak Ridge National Laboratory***
Presentations:

Validation and Verification of Water Flow and Heat Transfer in Fractal Small-Scale Cold Plates, VVUQ2026-183686
Technical Paper Publication
Maryam Haghsheno - Texas A&M University
Aagam Shah - Western New England University
Mahyar Pourghasemi - Western New England University
Nima Fathi - Texas A&M University

ASME V&v-20 Verification, Validation, and Uncertainty Quantification of Bluff-Body Crossflow Simulations, VVUQ2026-183670
Technical Paper Publication
Umran Uzen - Texas A&M University
Mark Kimber - Texas A&M University

Discretization Error Transport Equations for Cfd Applications, VVUQ2026-183585
Technical Presentation Only
Aniruddha Vikrama - Virginia Tech
William Jordan - Virginia Tech
Chris Roy - Virginia Tech

04-01 Development and Application of Verification and Validation Standards
5/20/2026
3:45 PM to 5:00 PM - Featheringill Hall 138

Chair: ***Daniel Papert - ASME***
Presentations:

Expanding the V&v-20 Standard: A Structured Approach for Validating Cfd in Engineering Applications, VVUQ2026-185648
Technical Presentation Only
Kevin Dowding - Sandia Labs
Nigel Taylor - MBDA UK Ltd.

Recasting ASME VVUQ Standards for Improved Adoption and Impact, VVUQ2026-185465
Technical Presentation Only
Blake Lance - Sandia National Laboratories
Kevin Dowding - Sandia National Laboratories
Sarah Kieweg - Sandia National Laboratories

An Educational Example of the Application of Verification, Validation and Uncertainty Quantification, VVUQ2026-183825
Technical Paper Publication
Luis Eca - IST
Andrew White - Rolls-Royce Industrial Machinery Manufacturing
Gregory Banyay - THE PENNSYLVANIA STATE UNIVERSITY
Ismail Guler - Boston Scientific
Noah Vandam - UMass Lowell Francis College of Engineering

17-01 Reception Poster Presentations
5/20/2026
5:30 PM to 6:30 PM - Atrium

Chair: ***Joanne Budzien -***
Presentations:

Generalized-Order Constitutive Modeling and Uncertainty Quantification of Polyurea-Graphene Nanocomposites, VVUQ2026-183170
Poster Presentation
Arman Khoshnevis - Michigan State University
Mohsen Zayernouri - Michigan State University

Building a Credibility Case Using Validation Suites, VVUQ2026-185726
Poster Presentation
Joanne Budzien - Los Alamos National Laboratory

Uncertainty Quantification in Mechanical Property Prediction Using the Crystal Plasticity Finite Element Model, VVUQ2026-186241
Poster Presentation
Letian Ren - Vanderbilt University
Arulmurugan Senthilnathan - Vanderbilt University
Sankaran Mahadevan - Vanderbilt University

THURSDAY, 5/21/2026

05-01 Verification Methods
5/21/2026
10:30 AM to 12:35 PM - Featheringill Hall 132

Chair: ***Jim Ferguson - Los Alamos National Laboratory***
Presentations:

Self-Similar Mesh Convergence, Asymptotic Convergence, and Energy Transport Analysis, VVUQ2026-185780
Technical Presentation Only
Jim Ferguson - Los Alamos National Laboratory

A Rigorous Regime Switching Asymptotic Verification Test for Neutral Particle Transport Codes, VVUQ2026-185501
Technical Presentation Only
William Bennett - Los Alamos National Laboratory
Jim Ferguson - Los Alamos National Laboratory

Progress on Code Verification for Collisional Plasma Dynamics, VVUQ2026-185112
Technical Presentation Only
Brian Freno - Sandia National Laboratories

A Practical Tool for the Estimation of Iterative Errors of Non-Linear Simulations, VVUQ2026-183835
Technical Paper Publication
Luis Eca - IST
Serge Toxopeus - MARIN
Maarten Kerkvliet - MARIN

A Comparison of Regression and Bounding for Richardson Extrapolation-Based Discretization Error Estimators, VVUQ2026-182475
Technical Paper Publication
Justin Weinmeister - Oak Ridge National Laboratory
Devina Sanjaya - University of Tennessee, Knoxville

16-01 Artificial Intelligence, Machine Learning Models
5/21/2026
10:30 AM to 12:35 PM - Featheringill Hall 136

Chair: ***Chris Roy - Virginia Tech***
Presentations:

Toward Certifying Trustworthy Machine Learning, VVUQ2026-185767
Technical Presentation Only
Erin Acquesta - Sandia National Laboratories
Michael Darling - Sandia National Laboratories
Jake Nichol - Sandia National Laboratories

Physics-Informed Machine Learning for Turbulence Modeling Using Data Assimilation and Field Inversion, VVUQ2026-185664
Technical Presentation Only
Joseph Gonzales - Virginia Tech
David Stelter - Spectral Sciences Inc.
Christopher Roy - Virginia Tech

Applications for Softmax-Based Deep Neural Network in Regression, VVUQ2026-185462
Technical Presentation Only
Samuel Queralt - The University of Texas at Austin
Jeongwon Seo - The University of Texas at Austin
Kevin Clarno - The University of Texas at Austin

Verification and Validation of a Physics Informed Diffusion Model Applied to Critical Heat Flux Data, VVUQ2026-186549
Technical Presentation Only
Alexandra Akins - North Carolina State University
Farah Alsafadi - Paul Scherrer Institute PSI
Xu Wu - North Carolina State University

Leveraging Large Language Models to Assess Model and Simulation Credibility and Adherence to Nasa Standards, VVUQ2026-187497
Technical Presentation Only
Jerry Myers - NASA - John H Glenn Research Center
Mona Matar - NASA - John H Glenn Research Center
Debra Goodenow - NASA - John H Glenn Research Center

19-01 Model Credibility and Risk Quantification
5/21/2026
10:30 AM to 12:35 PM - Featheringill Hall 138

Chair: ***Pranav Karve - Vanderbilt University***
Chair: ***Kyle Neal - Sandia National Laboratory***
Presentations:

Maintaining Credibility While Streamlining VVUQ Analysis Through Workflow Automation, VVUQ2026-186703
Technical Presentation Only
Aaron Krueger - Sandia National Laboratories
Kyle Neal - Sandia National Laboratories
Kevin Irick - Sandia National Laboratories

a Credibility Implementation Approach for Modeling and Simulation (Modsim): Enhancing Trust in the Use of Modsim to Support Complex Engineering Systems Development, VVUQ2026-186659
Technical Presentation Only
Benjamin Schroeder - Sandia National Laboratories
Angel Urbina - Sandia National Laboratories
Kevin Dowding - Sandia National Laboratories

Model Risk Quantification for Decision Support, VVUQ2026-185776
Technical Presentation Only
Pranav Karve - Vanderbilt University
Sankaran Mahadevan - Vanderbilt University
Kyle Neal - Sandia National Laboratories
Joshua Mullins - Sandia National Laboratories

Tracking Model-Risk Evolution Over the Project Lifecycle: An Electromagnetics Case Study, VVUQ2026-185771
Technical Presentation Only
Kyle Neal - Sandia National Laboratories
Pranav Karve - Vanderbilt University
Sankaran Mahadevan - Vanderbilt University
Alden Pack - Sandia National Laboratories
Aaron Krueger - Sandia National Laboratories
Joshua Mullins - Sandia National Laboratories

Exploration and Discussion of Existing and Emerging Challenges Around Execution and Communication of Vvuq for Engineering Models, VVUQ2026-185766
Technical Presentation Only
Justin Winokur - Sandia National Laboratories

12-01 Medical Devices and Pharmaceuticals
5/21/2026
1:45 PM to 3:25 PM - Featheringill Hall 132

Chair: ***Marc Horner - ANSYS, Inc.***
Presentations:

Investigations of Spatial Discretization Uncertainty Applied to Computational Fluid Dynamics Simulations of Fluid Flow Through a Needle-Free Connector, VVUQ2026-186534
Technical Presentation Only
Christopher Basciano - BD
Siddarth Nagarajan - BD
Ulas Ayaz - BD
Siva Balasubramanian - BD

Validation of Benchmark Device for Verification of Upper-Limb Offloading for Lunar and Martian Gravity Simulation, VVUQ2026-183833
Technical Paper Publication
Zachary Hash - LeTourneau University
Christopher Beck - NASA
Andrew Davis - LeTourneau University

Regulatory Science Tools for Credibility Assessment of Computational Modeling in Medical Devices, VVUQ2026-185182
Technical Presentation Only
Pras Pathmanathan - US FDA

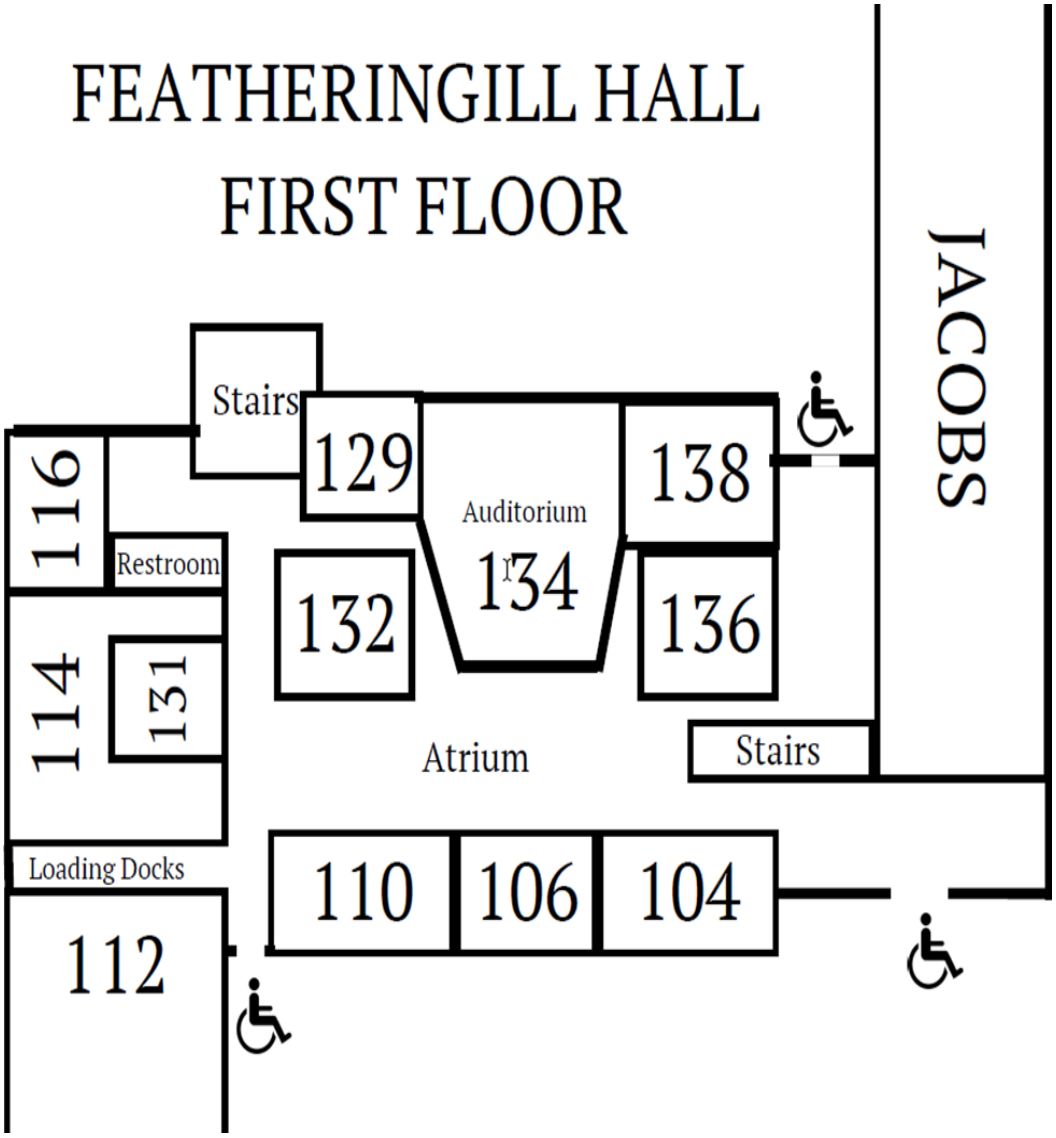
16-02 Artificial Intelligence, Machine Learning Models
5/21/2026
1:45 PM to 3:25 PM - Featheringill Hall 136

Chair: ***Chris Roy - Virginia Tech***
Presentations:

Comparison and Analysis of Various Numerical and Machine Learning Methods for Prediction of Thermal Management System Performance and Design, VVUQ2026-185434
Technical Presentation Only
Aaron J. Hartzell - Ray W. Herrick Laboratories, School of Mechanical Engineering, Purdue University
Riley B. Barta - Ray W. Herrick Laboratories, School of Mechanical Engineering, Purdue University

Statistical Data-Driven Predictive Model for Adaptive Toolpath Planning Across Multiple Lasers of Metal Powder Bed Fusion System., VVUQ2026-183792
Technical Paper Publication
Abdullah Alrashdan - University of California, Berkeley

Predictive Capability of Machine Learning Models in Computational Mechanics, VVUQ2026-185681
Technical Presentation Only
Chris Roy - Virginia Tech
Joseph Gonzales - Virginia Tech


FEATHERINGILL HALL
FIRST FLOOR
JACOBS
Stairs
129
Auditorium
134
138
116
Restroom
132
136
114
131
Atrium
Stairs
Loading Docks
110
106
104
112

VERIFICATION VALIDATION AND UNCERTAINTY QUANTIFICATION

VVUQ 2026

SAVE THE DATE

2027 Verification, Validation, and Uncertainty Quantification Symposium

IS SCHEDULED FOR

MAY 17-20, 2027

CITY TO BE DETERMINDED

VERIFICATION
VALIDATION
AND
UNCERTAINTY
QUANTIFICATION

VVUQ 2026

The American Society of Mechanical Engineers®
ASME®

ASME®
SETTING THE STANDARD