Wednesday May 20, 2020			
9-9:10 am EDT	**Welcome and Plenary Session Webinar**		
Plenary 9:10-10:10 am	**Joseph M. Powers, Professor of Aerospace and Mechanical Engineering and Concurrent Professor of Applied and Computational Mathematics and Statistics at the University of Notre Dame**	**Verification in Scientific Computing: From Pristine to Practical to Perimeter-Extending**	
	Zoom Room 1	**Zoom Room 2**	**Zoom Room 3**
Session 1 10:30 am-12:35 pm	**08-01 VVUQ for Solid Mechanics, Structures, Impact, and Blast Sessions**	**06-01 Methods for Uncertainty Quantification, Sensitivity Analysis, and Prediction Sessions**	**03-01 Topics in Verification, Validation & Uncertainty Quantification Sessions**
10:30-10:55	Submission ID: 15416 ASME Paper Number: VVS2020-8849 Corresponding Author: Louay S. Yousuf, San Diego State University Title: Effect of Contact Load on the Bending Deflection of Globoidal Cam Profile With Roller Follower Mechanism	Submission ID: 6448 ASME Paper Number: VVS2020-8816 Corresponding Author: Evan Chodora, Clemson University Title: Improving the Interpretability of Physics-Based Bias in Material Models	ASME Paper Number: VVS2020-8841 Corresponding Author: John Grove, Los Alamos National Laboratory Title: A Verification and Validation Study of the Cyclops I Pbx 9502 Experiment
10:55-11:20	Submission ID: 17009 ASME Paper Number: VVS2020-8896 Corresponding Author: Matthew Kirby, Southwest Research Institute Title: Modeling of Fracture Risk and Fatigue Life in 17-4 Ph Main Steam Isolation Valve Stems	Submission ID: 11740 ASME Paper Number: VVS2020-8806 Corresponding Author: Jun Guo, Michigan State University Title: Non-Uniqueness in Model Parameterization and Its Potential Contribution to Uncertainty	Submission ID: 16741 ASME Paper Number: VVS2020-8867 Corresponding Author: George Orient, Sandia National Laboratories Title: Credibility Framework – an End-to-End Credibility Workflow Platform
11:20-11:45	Submission ID: 15736 ASME Paper Number: VVS2020-8847 Corresponding Author: Walter Ponge-Ferreira, Minerva Serviços Técnicos Especializados Title: Stress Error Affected Zone of Finite Element of Truss Structures by Data Cluster Analysis	Submission ID: 12015 ASME Paper Number: VVS2020-8811 Corresponding Author: Joshua Kaizer, U.S. Nuclear Regulatory Commission Title: A Complete Set of Errors for Modeling and Simulation	Submission ID: 16744 ASME Paper Number: VVS2020-8868 Corresponding Author: George Orient, Sandia National Laboratories Title: Next Generation Workflow – an Open Source Software System for Computational Modeling to Support Agile Vvuq
11:45-12:10	Submission ID: 16949 ASME Paper Number: VVS2020-8903 Corresponding Author: Wongon Kim, Seoul National University Title: A Recursive Model Updating to Estimate Fatigue Crack Initiation and Growth	Submission ID: 16201 ASME Paper Number: VVS2020-8853 Corresponding Author: Kenneth Tanski, Logica Title: Engineering Models and Response Sensitivity	Submission ID: 16831 ASME Paper Number: VVS2020-8876 Corresponding Author: Blake Lance, Sandia National Laboratories Title: Experimental Credibility for Modeling and Simulation
12:10-12:35		Submission ID: 16798 ASME Paper Number: VVS2020-8869 Corresponding Author: Avinash Vaidheeswaran, National Energy Technology Laboratory Title: Sensitivity Analysis of Particle-in-Cell Modeling Parameters in Mfix-Pic	Submission ID: 16982 ASME Paper Number: VVS2020-8904 Corresponding Author: Eric Dodgen, Honeywell/FM&T Title: Credible Evidence Package for Structural Dynamics Applications in Fabrication Environmental Testing
Wednesday Lunch 12:35-1:30pm			
Session 2 1:30-3:35 pm	**08-02 VVUQ for Solid Mechanics, Structures, Impact, and Blast Sessions**	**06-02 Methods for Uncertainty Quantification, Sensitivity Analysis, and Prediction Sessions**	**02-01 Development and Application of Verification and Validation Standards Sessions**
1:30-1:55	Submission ID: 17013 ASME Paper Number: VVS2020-8899 Corresponding Author: David Riha, Southwest Research Institute Title: Layered Pressure Vessel Fracture Risk Assessment Model Development Using a Verification and Validation Framework	Submission ID: 2360 ASME Paper Number: VVS2020-8881 Corresponding Author: Michael Prime, Los Alamos National Laboratory Title: Physical Regime Sensitivity	Submission ID: 13077 ASME Paper Number: VVS2020-8826 Corresponding Author: Luis Eca, IST Title: On the Interpretation and Scope of the V&v 20 Standard for Verification and Validation in Computational Fluid Dynamics and Heat Transfer

	1:55-2:20	Submission ID: 16806 ASME Paper Number: VVS2020-8873 Corresponding Author: Stephen A. Andrews, Los Alamos National Laboratory Title: Quantifying Uncertainty in Models for High Explosive Equations of State	Submission ID: 16809 ASME Paper Number: VVS2020-8870 Corresponding Author: Gavin Jones, SmartUQ Title: Predictive Analytics and Uncertainty Quantification of a Microwave Ablation Simulation With a Spatially Varying Response	Submission ID: 15919 ASME Paper Number: VVS2020-8852 Corresponding Author: Mehul Dharia, Zimmer Biomet Title: Tibial Baseplate Strength in Total Knee Replacement: Application of Asme Vv40-2018 Standard	
	2:20-2:45	**15-01 VVUQ for Computational Electromagnetics, Plasma, Radiation Transport Sessions** Submission ID: 16919 ASME Paper Number: VVS2020-8889 Corresponding Author: Shawn Pautz, Sandia National Laboratories Title: Verification of Deterministic Radiation Transport Codes	Submission ID: 16864 ASME Paper Number: VVS2020-8875 Corresponding Author: Vicente Romero, Sandia National Laboratories Title: Processing Experimental Data With Random and Systematic Uncertainties in Replicate Tests of Stochastic Systems	Submission ID: 16911 ASME Paper Number: VVS2020-8920 Corresponding Author: Mark Goodin, SimuTech Group, Inc. Title: Applying the Asme V&v40 Standard to a Patient-Specific Computational Model Used in a Software as a Medical Device	
	2:45-3:10	Submission ID: 17015 ASME Paper Number: VVS2020-8897 Corresponding Author: Shawn Pautz, Sandia National Laboratories Title: Adjoint-Based Uq and Optimization Under Uncertainty for Satellite Shield Designs	Submission ID: 16943 ASME Paper Number: VVS2020-8880 Corresponding Author: Justin Winokur, Sandia National Laboratories Title: Empirical Sensitivity Analysis for Scalar and Field Quantities	Submission ID: 18351 ASME Paper Number: VVS2020-8921 Corresponding Author: William Oberkampf, W L Oberkampf Consulting Title: NAFEMS Simulation Governance and Management Working Group Activities	
	3:10-3:35	Submission ID: 18297 ASME Paper Number: VVS2020-8918 Corresponding Author: Jim Ferguson, Los Alamos National University Title: Asymptotic Preserving Radiative-Shock Solutions	Submission ID: 15733 ASME Paper Number: VVS2020-8846 Corresponding Author: Benjamin Schroeder, Sandia National Laboratories Title: Characterizing Material Emissivity Uncertainty in Fire Environments for Computational Simulation	Submission ID: 18230 ASME Paper Number: VVS2020-8915 Corresponding Author: Alexander Karl, Rolls-Royce Title: NAFEMS Stochastics Working Group Activities Track: Development and Application of Verification and Validation Standards	
	Break 3:35-4:00 pm				
	Session 3 4:00-5:40 pm	**01- 03 Workshop on the Assessment of the Multivariate Metric V&V 20 Workshop Session**	**05-01 Validation Methods Sessions**	**02-02 ASME and NAFEMS Collaboration for the Development and Improvement of VVUQ Sessions**	
	4:00-4:25		Submission ID: 16297 ASME Paper Number: VVS2020-8872 Corresponding Author: Brandon Wilson, Los Alamos National Laboratory Title: Multi-Fidelity Model Validation Over a Multidimensional Use-Space		
	4:25-4:50		Submission ID: 16444 ASME Paper Number: VVS2020-8855 Corresponding Author: Edward Schwalb, MSC Software Title: Analysis of Hazards for Autonomous Driving		
	4:50-5:15		Submission ID: 16828 ASME Paper Number: VVS2020-8871 Corresponding Author: Joanne Budzien, Los Alamos National Laboratory Title: Incorporating Ejecta Models Into a Common Modeling Framework		
	5:15-5:40		Submission ID: 16862 ASME Paper Number: VVS2020-8874 Corresponding Author: Vicente Romero, Sandia National Laboratories Title: Relationships Between Asme Vv 10 & 20, Aiaa Cfd, Real Space, and Several Other Model Validation Frameworks		

Thursday May 21, 2020		
9-9:10 am EDT	**Welcome and Plenary Session Webinar**	
Plenary 9:10- 10:45 am	**Dr. Mirela Gavrilas, NRC, Deputy Office Director for Reactor Safety Programs and Corporate Support Dr. Jennifer Wolk, Program Officer at the Office of Naval Research and Dr. Nick Hengartner, LANL, Use of Statistical and Mechanistic Models in the context of COVID 19**	**01- 01 The Role of V&V in Decision Making**
	Zoom Room 1	**Zoom Room 2**
Session 1 11:00 am-12:40 pm	**10-2 ASME V&V 40 Subcommittee Verification Working Group Challenge Problems for Computational Modeling of Medical Devices**	**07-01 VVUQ for Fluid Dynamics and Heat Transfer Sessions**
11:00-11:25		Submission ID: 15393 ASME Paper Number: VVS2020-8843 Corresponding Author: Filipe Pereira, Los Alamos National Laboratory Title: The Importance of Verification and Validation for Scale-Resolving Simulations of Turbulence
11:25-11:50		Submission ID: 15410 ASME Paper Number: VVS2020-8854 Corresponding Author: Gustavo Montoya, ANSYS, Inc. Title: Validation and Verification of Ansys Fluent Boiling Capabilities
11:50-12:15		Submission ID: 15983 ASME Paper Number: VVS2020-8895 Corresponding Author: William Fullmer, Purdue University Title: Benchmarking Activities With Mfix-Exa
12:15-12:40		Submission ID: 16914 ASME Paper Number: VVS2020-8890 Corresponding Author: Giancarlo Lenci, Dominion Engineering, Inc. Title: Supersonic Jets for Filter Regeneration: Overview of Experimental and Validation Activities
Thursday Lunch 12:40-1:30pm - Student Presentations Q&A		

	Session 2 1:30-3:35 pm	**10-01 VVUQ for Biomedical Engineering Sessions**	**09-01 VVUQ for Nuclear Power Applications Sessions**	
	1:30-1:55	Submission ID: 11912 ASME Paper Number: VVS2020-8808 Corresponding Author: Weiyong Gu, SILICOSPINE Title: Verification of a Numerical Model for Simulating Intervertebral Disc Pathophysiology	Submission ID: 12039 ASME Paper Number: VVS2020-8812 Corresponding Author: Tyler Remedes, LANL Title: Radiation Transport Simulation Results Assessment Through Comparison With Reduced Complexity Analytic and Computational Models	
	1:55-2:20	Submission ID: 15914 ASME Paper Number: VVS2020-8850 Corresponding Author: Jeffrey Bodner, Medtronic Corp Title: Strategies for Performing Uq for Biomedical Models Dominated by Epistemic Uncertainties	Submission ID: 13437 ASME Paper Number: VVS2020-8836 Corresponding Author: Kevin Irick, Sandia National Laboratories Title: High-Fidelity Calculation of Effective Thermal Response of Composite Media With Heat Generation Source	
	2:20-2:45	Submission ID: 16288 ASME Paper Number: VVS2020-8862 Corresponding Author: Ramin Bighamian, Food & Drug Administration Title: A Learning-Enabled Tool for Model Performance Assessment Toward in Silico Closed-Loop Control Evaluation	Submission ID: 12936 ASME Paper Number: VVS2020-8821 Corresponding Author: Jason Thompson, Nuclear Regulatory Commission Title: Cfd Verification and Validation Exercise: Turbulent Mixing of Stratified Layer	
	2:45-3:10	Submission ID: 7363 ASME Paper Number: VVS2020-8893 Corresponding Author: Pras Pathmanathan, US Food and Drug Administration Title: Impact of Parameter Uncertainty on Cardiac Electrophysiological Model Predictions	**11-01 VVUQ for Power Systems** Submission ID: 13432 ASME Paper Number: VVS2020-8835 Corresponding Author: Kevin Irick, Sandia National Laboratories Title: Evaluation of Pore Geometry Effects on Porous Cell Thermal Behavior	
	3:10-3:35	Submission ID: 18275 ASME Paper Number: VVS2020-8917 Corresponding Author: Karl Johannes, University of Colorado Boulder Title: Bulk Experimental Data and Micro Scale Contact Modeling of Adhesion Mechanics of Highly Strained Silicone Micro-Patterned Surfaces in Contact With Soft Polyvinyl Chloride (Pvc) Material	Submission ID: 12573 ASME Paper Number: VVS2020-8815 Corresponding Author: David (Weidong) Cheng, Fluor Enterprises Inc Title: Predictive Uncertainty Quantification of Artificial Neural Network Models in Pipeline Leak Detection	
	Break 3:35-4:00 pm			
	Session 3 4:00-6:30 pm	**06-03 Methods for Uncertainty Quantification, Sensitivity Analysis, and Prediction Sessions**	**04-01 Verification Methods Sessions**	

	4:00-4:25	Submission ID: 13055 ASME Paper Number: VVS2020-8825 Corresponding Author: Felipe Periera, IST Title: On the Role of Discretization Errors in the Quantification of Parameter Uncertainties	Submission ID: 16523 ASME Paper Number: VVS2020-8859 Corresponding Author: Jeff Beisheim, Ansys Inc. Title: Verifiable Improved Results for Finite Element Analysis of Three-Dimensional Stress Concentrations	
	4:25-4:50	Submission ID: 16997 ASME Paper Number: VVS2020-8888 Corresponding Author: Joshua Kaizer, U.S. Nuclear Regulatory Commission Title: From Error to Uncertainty Models	Submission ID: 18298 ASME Paper Number: VVS2020-8919 Corresponding Author: Jim Ferguson, Los Alamos National University Title: Defensible Error Estimation by Transitioning Between Analytic Solutions	
	4:50-5:15	Submission ID: 17493 ASME Paper Number: VVS2020-8910 Corresponding Author: Grant Meadors, Los Alamos National Laboratory Title: Data Assimilative Optimization of Wsa Source Surface and Interface Radii Using Particle Filtering	Submission ID: 16564 ASME Paper Number: VVS2020-8863 Corresponding Author: António Brito, Instituto Superior Técnico - Universidade de Lisboa Title: Solution Verification in Dem Simulations	
	5:15-5:40	Submission ID: 13417 ASME Paper Number: VVS2020-8834 Corresponding Author: Kevin Irick, Sandia National Laboratories Title: Full Function Sampling of Uncertain Correlations	Submission ID: 16957 ASME Paper Number: VVS2020-8900 Corresponding Author: Takahiro Yamada, Yokohama Nat'l Univ Title: Code Verification of Finite Element Method for Elastodynamics Problems	
	5:40-6:05	Submission ID: 16872 ASME Paper Number: VVS2020-8882 Corresponding Author: Seth Lawrence, Intelligent Light Title: Reducing the Cost of Uncertainty Quantification at Hypersonic Speeds		
	6:05-6:30	Submission ID: 17296 ASME Paper Number: VVS2020-8907 Corresponding Author: Gage Walters, The Pennsylvania State University Title: Reconstructing Probability Distributions From Generalized Polynomial Chaos Expansions		

Friday May 22, 2020		
9-9:10 am EDT	**Welcome and Plenary Session Webinar**	
Plenary 9:10- 11:10 am	**Jeff Bodner, George Hazelrigg, Josh Kaizer, William Oberkampf**	**01-02 The Unanswered Questions in VVUQ: Quantifying the Unknown**
	Zoom Room 1	**Zoom Room 2**
Session 1 11:30 am-12:45 pm	**05-02 Validation Methods Sessions**	**01- 04 V&V Benchmark Problem #2 - Single Jet Computational Fluid Dynamics (CFD) Numerical Model Validation**
11:30-11:55	Submission ID: 15993 ASME Paper Number: VVS2020-8891 Corresponding Author: Ian Tregillis, Los Alamos National Laboratory Title: A Case Study in Improvement of a Multiphysics Model Through the Application of Verification and Validation Methods	Submission ID: 12188 ASME Paper Number: VVS2020-8813 Corresponding Author: Suryanarayana Prasad Vegendla, Argonne National Lab Title: Cfd Model Validation for a Benchmark Data of Texas A&m 1/16th Scaled Vhtr Upper Plenum
11:55-12:20	Submission ID: 16282 ASME Paper Number: VVS2020-8905 Corresponding Author: Christopher Roy, Virginia Tech Title: Overview of the Nasa / Virginia Tech Turbulent Flow Validation Experiment	
12:20-12:45	Submission ID: 17494 ASME Paper Number: VVS2020-8909 Corresponding Author: William Oberkampf, W L Oberkampf Consulting Title: Model Validation Experiments: They Can't Be That Hard	
Friday Lunch 12:45-1:30pm		

	Session 2 **1:30-3:35 pm**	**16-01 VVUQ for Artificial Intelligence and Machine Learning Models Sessions**	**13-01 VVUQ for Advanced Manufacturing Sessions**	
	1:30-1:55	Submission ID: 6318 ASME Paper Number: VVS2020-8802 Corresponding Author: Derek Armstrong, Los Alamos National Laboratory Title: Using Deep Neural Networks to Extract Fireball Parameters From Infrared Spectral Data	Cancelled	
	1:55-2:20	Submission ID: 13345 ASME Paper Number: VVS2020-8833 Corresponding Author: Kyle Haas, Hinman Consulting Engineers Title: Limiting Machine Learning Overfitting Uncertainties Through Persistent Homology	Submission ID: 18452 ASME Paper Number: VVS2020-8925 Corresponding Author: Joe Hightower, The Boeing Company Title: Verification and Validation Interactions With the Model Life Cycle	
	2:20-2:45	Submission ID: 16299 ASME Paper Number: VVS2020-8866 Corresponding Author: Lorraine Guerin, ATA Engineering Title: Model Calibration in Latent Response Space Using Principal Component Analysis	Submission ID: 13445 ASME Paper Number: VVS2020-8842 Corresponding Author: Hamed Hosseinzadeh, Rowan University Title: Computational Software for Additive Manufacturing: Predictive Validation and Sensitivity Analysis	
	2:45-3:10	Submission ID: 15340 ASME Paper Number: VVS2020-8878 Corresponding Author: Gregory Banyay, Westinghouse Electric Company Title: Credibility Assessment of Machine Learning Enhanced Manufacturing Process Quality Control for Nuclear Components	**14-01 VVUQ for Transportation Systems, Aerospace, and Automotive Sessions** Submission ID: 11930 ASME Paper Number: VVS2020-8822 Corresponding Author: Shaun Eshraghi, Volpe National Transportation Systems Center Title: Comparison of Methodologies for Finite Element Model Validation of Railroad Tank Car Side Impact Tests	
	3:10-3:35	Submission ID: 16860 ASME Paper Number: VVS2020-8912 Corresponding Author: M. Giselle Fernandez-Godino, Los Alamos National Laboratory Title: Using Machine Learning Techniques to Study and Validate Plasma Fusion Experiments	Submission ID: 18422 ASME Paper Number: VVS2020-8923 Corresponding Author: David Moorcroft, Federal Aviation Administration Title: Experiences From Five Years of Certification by Analysis: Anonymized Case Studies From the Aviation Industry	
	End of Program 3:35 pm			