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Virginia Space Grant Consortium

2021 Student Research Conference Program

April 9, 2021

Each presentation listed in the Conference Agenda below is color coded by the general category of research. Please refer to this legend to identify the research area of each presentation

Aerospace (Blue)	Applied Science/Other (Green)	Astrophysics (Pink)	Structures and Materials (Yellow)

8:00-8:30	**Attendees Login to WebEx Conference Platform**			
8:30-8:45	**Mary Sandy, VSGC Director and Joyce Kuberek, STEM Education Program Specialist Main Room**			
Presentation Room Number:	**Graduate Presentation Room #1**	**Graduate Presentation Room #2**	**Graduate Presentation Room #3**	**Undergraduate Presentation Room #4**
8:50 a.m.	**Imran Khasawneh** **Old Dominion University** A 3-Axis PID Gain Tuner for eVTOLHover Flight Mode **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Austin Tapp** **Old Dominion University** Modeling and Simulation of Pulsed Electromagnetic Fields to Maintain Bone Density During Prolonged Low Gravity Exposure	**Hannah Richstein** **University of Virginia** Ultra-Faint Dwarf Galaxies: Shedding Light on Dark Matter	**Abigail Morgan Re** **Virginia Tech** The Construction and Development of an NFT System for Mushroom Cultivation in Space
9:05 a.m.	**Rebecca Skeleton-Marshall** **University of Virginia** Analysis of Galvanic Coupling in Fastener **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Carly Norris** **Virginia Tech** Investigating Space Brain: How Do Brain Cells Respond to the Effects of Increased Intracranial Pressure	**Doyee Byun** **Virginia Tech** Quasar Outflow Analysis+G6:H10: Extreme Ultraviolet Observations and Beyond	**David Hood** **William & Mary** Imaging the Electronic Quenching Dynamics of Nitric Oxide with Molecular Hydrogen

9:20 a.m.	**Yogesh Aradhey** **Virginia Tech** Investigation of NASA Combustion Scheme Under Thermoacoustic Instability **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Lee Kendall** **William & Mary** Integrated Nanotube/Transition Metal Dichalcogenides Nanosheets of Water Splitting Applications: Enabling Loing Terma Activity on Mars **Session Chair:** **Russell Green** **Virginia Tech**	**Renato Mazzei** **University of Virginia** The Role of Magnetic Fields in Star Formation from Cloud to Disk Scales	**Mikayla Huffman** **William & Mary** Craters as Passive Probes of Ice Shell Structure and Transport Processes on Ocean Worlds
9:35 a.m.	**Fiona McGroarty** **Virginia Tech** Constructing Crustal and Lithospheric Profiles of Mars Using NASA InSight Data **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Josh Moser** **Virginia Tech** Autonomous Task Sequencing and Assignment for In-Space Multi-Robot Assembly **Session Chair:** **Russell Green** **Virginia Tech**	**Christopher Krier** **Virginia Tech** Deducing Non-Migrating Diurnal Tides in the Earth's Thermosphere Using Satellite Data from the NASA/GOLD Mission	**Kieran Koch** **Virginia Tech** Stressing Testing Solid Rockets Motors made with Additive Manufacturing
9:50 a.m.	**MacKenzie Ridley** **University of Virginia** Tailoring Thermal Properties and Corrosion Resistance of Environmental Barrier Coatings **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Sarah Power** **Virginia Tech** Cryptic Microbes in Antarctica: Determining the Limits of Biotic Detection Via Satellite Imagery **Session Chair:** **Russell Green** **Virginia Tech**	**Joseph Cuozzo** **William & Mary** Novel Josephson Junctions for Cryogenic Memory and Fault-Tolerant Quantum Computation	**Sarah Lang** **University of Virginia** Modeling Coastal Water Clarity Using Landsat-8 and Sentinel-2
10:05 to 10:15	**Remarks, Dr. Tim Sands, Virginia Tech President and Chair, VSGC Board of Directors**			
10:15 to 10:30	**BREAK**	**BREAK**	**BREAK**	**BREAK**

10:30 a.m.	**Mary Angelique Demetillo** **University of Virginia** Assessing Air Pollutant Exposure Inequality Using High-Resolution Nitrous Dioxide Datasets **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Ryan Zelinsky** **University of Virginia** Investigation of Metal Ion Mobility Under Exposure to Deactivating Agents **Session Chair:** **Dr. Isi Ero-Tolliver** **Hampton University**	**Benjamin Belfore** **Old Dominion University** Modeling Dynamic Recrystallization of Phase Change Materials for Applications in Adaptive Optics **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Sean Leonard** **Old Dominion University** Robustness for a Pseudo-Constrained Parallel Data Refinement Method for Advancing Front Local Reconnection Mesh Generation Software **Session Chair:** **Nathanael Kidwell** **William & Mary**
10:45 a.m.	**Delaney Costante** **William & Mary** Quantifying Threats Affecting Imperiled Species in the United States **Session Chair:** **Dr. Joseph Meadows** **Virginia Tech**	**Nathan Cooper** **William & Mary** Athena: Towards Improving Semantic Code Search with Casual Reasoning and Knowledge Graphs **Session Chair:** **Dr. Isi Ero-Tolliver** **Hampton University**	**Abygail Waggoner** **University of Virginia** Time Variable Chemistry in Protoplanetary Disks **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Devin McCulley** **Virginia Tech** Sensing in Collaborative Assembly with Uncertainty **Session Chair:** **Nathanael Kidwell** **William & Mary**
11:00 a.m.	**Deborah McGlynn** **Virginia Tech** Understanding Reactions of Ozone with Biogenic Volatile Organic Compounds in a Forest Canopy **Session Chair:** **Dr. Gabriel Isaacman-VanWetz** **Virginia Tech**	**Kelsey Huelsman** **University of Virginia** Assessing the Ability to Detect Invasive Plant Species Using Drone Based Leaf-Scale Visible and Near-Infrared Imaging Spectroscopy **Session Chair:** **Dr. Isi Ero-Tolliver** **Hampton University**	**Von Clyde Jamora** **Old Dominion University** Understanding the Defect Formation of Thin Ply Composites **During Automated Fiber Placement** **Session Chair:** **Dr. Jon Kay** **William & Mary**	**James Mullen** **Virginia Tech** Super Resolution of Satellite Imagery using Machine Learning **Session Chair:** **Nathanael Kidwell** **William & Mary**
11:15 a.m.	**Alicia Milam** **Old Dominion University** The Influence of Negative Affect Regulation on Neurophysiological Markers of Cognitive Control and Distress Tolerance **Session Chair:** **Dr. Gabriel Isaacman-VanWetz** **Virginia Tech**	**Kaleigh Yost** **Virginia Tech** Characterizing Complicated Near-Surface Geologic Profiles using Novel In-situ Testing and Data Processing Techniques. **Session Chair:** **Dr. Isi Ero-Tolliver** **Hampton University**	**Emma Marie Hepworth** **William & Mary** Elucidating the Molecular Mechanism of MK-STYX in Stress Response Pathways **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Leah Patek** **William & Mary** Effect of Microgravity on Neuromuscular Systems During Periods of Critical Development **Session Chair:** **Nathanael Kidwell** **William & Mary**

11:30 a.m.	**John Elliot** **Virginia Tech** Porous Carbon Fibers for Radioisotope Thermoelectric Power Generation **Session Chair:** **Dr. Gabriel Isaacman-VanWetz** **Virginia Tech**	**Hannah Mast** **University of Virginia** Solar Induced Chlorophyll Fluorescence: A Novel Approach to Quantify Photosynthesis in Wetland Ecosystems **Session Chair:** **Dr. Isi Ero-Tolliver** **Hampton University**	**Matthew Kane** **William & Mary** Using Spatial Data to Protect Nonbreeding Frog and Toad Habitat **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Dominic Pinnisi** **Old Dominion University** Materials Processing Challenges for Ultra -High Temperature Hypersonic Components **Session Chair:** **Nathanael Kidwell** **William & Mary**
Noon - 12:50	**Lunch Break**			
1:00 - 2:00	**2020-2021 Scholars and Fellows Recognition Ceremony** **Keynote Speaker: Dr. Yolanda L. Shea, Project Scientist – CLARREO Pathfinder** **NASA Langley Research Center**			
2:15 p.m.	**Eric Stone** **University of Virginia** Effects of Phase Mixtures on Long Term Stability of Yitterbium Silicate Environmental Barrier Coatings **Session Chair:** **Dr. Gabriel Isaacman-VanWetz** **Virginia Tech**	**Robin Thady** **William & Mary** Evaluating the Use of Acoustic Warning Signals to Reduce Avian Collision Risk	**Lauren Sommers** **Old Dominion University** Quantifying Shoreline Change Using Satellite Imagery **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Naomi Carter** **Hampton University** An Exploratory Literature Review of Microgravity-Induced Peripheral Nerve Damage and Potential Neuroprotectants Using Conceptual Research

2:30 p.m.	**Brian Collister** **Old Dominion University** Remote Sensing of Marine Particle Properties Using Shipboard Oceanographic Lidar **Session Chair:** **Dr. Gabriel Isaacman-VanWetz** **Virginia Tech**	**Jessica Turner** **William & Mary** A High-Resolution Spatiotemporal Investigation of Chesapeake Bay Water Clarity with Implications for Sediment Transport and Primary Production	**Sara Benham** **Old Dominion University** Mapping the Spread of the Pathogen Rickettsia Parkeri Through Landscape Genetic Analysis of the Primary Vector the Gulf Coast Tick Amblyomma Maclatum **Session Chair:** **Dr. Jon Kay** **William & Mary**	**Josef Zimmerman** **University of Virginia** Bounds on Nuclear Matter Equation of State Using Gravitational Wave and X-Ray Observations
2:45 to 3:00	**Closing Ceremony - Chris Carter, VSGC Deputy Director – Main Room**			