

# 14<sup>th</sup> ANNUAL DELAWARE SPACE GRANT RESEARCH SYMPOSIUM



Zoom Video Conference  
<https://udel.zoom.us/j/312366765>  
University of Delaware

April 15, 2020

- 8:30 (05) Opening Welcome and Introductions  
**Dr. William H. Matthaeus**, Unidel Professor of Physics & Astronomy, University of Delaware, and Director, Delaware Space Grant Consortium
- 8:35 (15) "Laser Based Remote Magnetometry using Sodium Atoms for Geomagnetic Field Measurements"  
**Dr. Renu Tripathi**, Professor, Division of Physics, Engineering, Mathematics and Computer Science, Delaware State University
- 8:50 (15) "Development of the University of Delaware CubeSat Ground Station"  
**Dr. Bennett Maruca**, Assistant Professor, Department of Physics & Astronomy, University of Delaware, and Associate Director, Delaware Space Grant Consortium
- 9:05 (05) "Structural Analysis and Design of the Mars Science Helicopter"  
**Allysa Mae Tuano**, 2019 NASA Ames Research Center Intern and 2019-2020 Undergraduate Tuition Awardee  
Mechanical Engineering, University of Delaware
- 9:10 (15) "Gas Adsorption Properties of Novel Metal-Organic Cages"  
**Casey Rowland**, 2019-2020 Graduate Fellow  
Inorganic Chemistry, University of Delaware  
Sponsored by: **Dr. Eric Bloch**, Assistant Professor, Department of Chemistry & Biochemistry, University of Delaware
- 9:25 (05) "Investigating Landsat-Derived Estimates of Evapotranspiration in the Delmarva Peninsula"  
**Callie McFadden**, 2019 Summer Research Intern  
Environmental Science/Ecoscience Concentration, University of Delaware

- 9:30 (15) "Efficient 3D Motion Tracking with Visual-Inertial Sensors"  
**Patrick Geneva**, 2019-2020 Graduate Fellow  
 Mechanical Engineering, University of Delaware  
 Sponsored by: **Dr. Guoquan Huang**, Assistant Professor, Department of  
 Mechanical Engineering, University of Delaware
- 9:45 (05) "Ultraviolet Spectroscopy of the ER Ursae Majoris Dwarf Nova: V1159  
 Orionis"  
**Rachel Price**, 2019 Summer Research Intern  
 Astronomy & Astrophysics, Villanova University
- 9:50 (15) "A Comparative Study of Blood Rheology across Species Identifying a New  
 Allometric Scaling"  
**Jeffrey Horner**, 2019-2020 Graduate Fellow  
 Chemical Engineering, University of Delaware  
 Sponsored by: **Dr. Antony N. Beris**, Arthur B. Metzner Professor and  
**Dr. Norman J. Wagner**, Unidel Robert L. Pigford Chair, Department of  
 Chemical & Biomolecular Engineering, University of Delaware
- 10:05 (05) "Micro Depth of Penetration and Micro Erosion of Unidirectional S-2  
 Glass/SC15 Composites"  
**Isabel Catugas**, 2019 NASA EPSCoR Research Intern  
 Mechanical Engineering, University of Delaware
- 10:10 (15) "Controlling the Product Distribution of a CO<sub>2</sub> Flow Cell Electrolyzer Gas  
 Stream"  
**Emily Jeng**, 2019-2020 Graduate Fellow  
 Chemical Engineering, University of Delaware  
 Sponsored by: **Dr. Feng Jiao**, Robert K. Grasselli Professor, Department of  
 Chemical & Biomolecular Engineering, University of Delaware
- 10:25 (05) "Impact of Carbon Length on War Gasses"  
**Victoir Cahoon**, 2019 Summer Research Intern and  
 2019-2020 Undergraduate Tuition Awardee  
 Biological Chemistry, Wesley College
- 10:30 (15) "Differential Mechanics and Healing Outcomes of Small and Large  
 Partial-Width Defects in the Tendon Attachment of the Rat Rotator Cuff"  
**Anna Lia Sullivan**, 2019 Summer Research Intern  
 Pre-Veterinary Medicine & Animal Biosciences, University of Delaware
- 10:45 (05) "Verification of 12-Bit Radiation Hardened Analog to Digital Converter"  
**Connor Olaya**, 2019 NASA Goddard Space Flight Center Intern  
 Computer Engineering, University of Delaware
- 10:50 (15) "University of Delaware Ionosphere Probe"  
**Jason Kalaygian**, 2019-2020 DPA RockSat-C Team  
 Physics, University of Delaware

- 11:05 (05) "Using Data Science to Optimize an Ideal Age for Astronauts on a Trip to Mars"  
**Joshua Windsor**, 2019 Summer Research Intern  
Mathematics, Wesley College
- 11:10 (15) "Undergraduate Research Course Curriculum"  
**Michael Wilson**, 2019 Research Intern  
Biology, Wilmington University  
**James Kennedy**, 2019 Research Intern  
Environmental Science & Policy, Wilmington University
- 11:25 (05) "Using CRISPR to Preserve Florida's Coral Reef Ecosystem"  
**Emily Kockott**, 2019 Research Intern  
Environmental Science & Policy, Wilmington University  
**Jakeyia Scott**, 2019 Research Intern  
Health Science, Wilmington University  
**Laynunwah Mambia**  
Environmental Science & Policy, Wilmington University
- 11:30 (15) "The Role of Muscle-Specific Fibroblast Growth Factor 9 (Fgf9) in Skeletal Muscle Innervation and Bone Shape"  
**Jaclyn Soulas**, 2019 Summer Research Intern  
Pre-Veterinary Medicine & Animal Biosciences, University of Delaware
- 11:45 (05) "CFD Validation of NFAC 80x120 Upwind Blockage Experiments"  
**Showvik Haque**, 2019 NASA Ames Research Center Intern  
Mechanical Engineering, University of Delaware
- 11:50 (15) "Observations of Gamma-ray Binaries with VERITAS"  
**Tyler Williamson**, 2019-2020 Graduate Fellow  
Physics, University of Delaware  
Sponsored by: **Dr. Jamie Holder**, Professor, Department of Physics & Astronomy, University of Delaware
- 12:05 (05) "UD Heritage Sounding Rocket Experiment Platform"  
**Avery Wimbrow**, 2019-2020 ECE RockSat-C Team  
Electrical Engineering, University of Delaware
- 12:10 (15) "Fourier Transform Infrared Spectroscopy and Machine Learning Techniques for the Sensitive Identification of Organics in Rocks"  
**Christina Walker**, 2019-2020 Graduate Fellow  
Applied Optics, Delaware State University  
Sponsored by: **Dr. Yuriy Markushin**, Associate Professor, Department of Physics & Pre-Engineering, Delaware State University
- 12:25 (05) "Universal Tooling Interface for Planetary Excavating Robots"  
**Matthew Holstein**, 2019-2020 ME Senior Design Team  
Mechanical Engineering, University of Delaware

12:30 (05)

Closing Comments

**Dr. William H. Matthaeus**, Unidel Professor of Physics & Astronomy and  
Director, Delaware Space Grant Consortium

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12:35

Adjourn

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# 2019-2020 DELAWARE SPACE GRANT AWARDS

## DESGC 2019-2020 Graduate Fellows

<b>Name</b>	<b>PhD Candidate for:</b>	<b>Institution</b>	<b>Faculty Sponsor</b>
Patrick Geneva	Mechanical Engineering	University of Delaware	Dr. Guoquan Huang
Jeffrey Horner	Chemical Engineering	University of Delaware	Dr. Antony Beris Dr. Norman Wagner
Emily Jeng	Chemical Engineering	University of Delaware	Dr. Feng Jiao
Casey Rowland	Inorganic Chemistry	University of Delaware	Dr. Eric Bloch
Christina Walker	Applied Optics	Delaware State University	Dr. Yuriy Markushin
Tyler Williamson	Physics	University of Delaware	Dr. Jamie Holder

## DESGC 2019-2020 Undergraduate Tuition Scholars

<b>Name</b>	<b>Major</b>	<b>Institution</b>
Lucas Attia	Chemical Engineering	University of Delaware
Victoir Cahoon	Biological Chemistry	Wesley College
Emily Chapman	Civil Engineering	University of Delaware
Tiana Cooks	Engineering Physics	Delaware State University
Anthony Hewitt	Physics	University of Delaware
Dylan Hilligoss	Physics/Astronomy Concentration	University of Delaware
Amylia Hoos	Physics	University of Delaware
Alexander Jean Francois	Biology	Wesley College
Sanna Kamara	Engineering Physics	Delaware State University
Sealani McCall	Mechanical Engineering	University of Delaware
Bakare O'Neil	Engineering Physics	Delaware State University
Allison Procak	Mechanical Engineering	University of Delaware
Keyanna Ryan	Engineering Physics	Delaware State University
Jeffrey Spencer	Mechanical Engineering	University of Delaware
Allysa Mae Tuano	Mechanical Engineering	University of Delaware

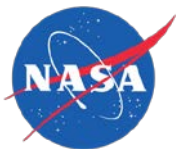
<b>Name</b>	<b>Major</b>	<b>Institution</b>
Showvik Haque	Mechanical Engineering	University of Delaware
Allysa Mae Tuano	Mechanical Engineering	University of Delaware

## 2019 Internship, NASA Goddard Space Flight Center (GSFC)

<b>Name</b>	<b>Major</b>	<b>Institution</b>
Connor Olaya	Computer Engineering	University of Delaware

## DESGC 2019 Research Interns

<b>Name</b>	<b>Major</b>	<b>Institution</b>	<b>Faculty Sponsor</b>
Victoir Cahoon	Biological Chemistry	Wesley College	Dr. Malcolm D'Souza
James Kennedy	Environmental Science & Policy	Wilmington University	Dr. Milton Muldrow
Emily Kockott	Environmental Science & Policy	Wilmington University	Dr. Milton Muldrow
Callie McFadden	Environmental Science/Ecoscience Concentration	University of Delaware	Dr. Tracy DeLiberty
Samuel Murphy	Physics	University of Delaware	Dr. James MacDonald
Jeffrey Neumann	Mechanical Engineering	University of Delaware	Dr. Bennett Maruca
Rachel Price	Astronomy & Astrophysics	Villanova University	Dr. Edward Sion
Jakeyia Scott	Health Science	Wilmington University	Dr. Milton Muldrow
Jaclyn Soulas	Pre-Veterinary Medicine & Animal Biosciences	University of Delaware	Dr. Megan Killian
Anna Lia Sullivan	Pre-Veterinary Medicine & Animal Biosciences	University of Delaware	Dr. Megan Killian
Michael Wilson	Biology	Wilmington University	Dr. Milton Muldrow
Joshua Windsor	Mathematics	Wesley College	Dr. Derald Wentzien



*Thank you for attending!*

[www.delspace.org](http://www.delspace.org)



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