

24th Annual Wisconsin Space Conference

Commercial Space Flight

August 15, 2014

BioPharmaceutical Technology Center
Promega Corporation Campus
Fitchburg, Wisconsin

Presented by:

**Wisconsin Space Grant Consortium
BioPharmaceutical Technology Center Institute
Orbital Technologies Corporation**

CONFERENCE PROGRAM

7:30-8:15am **Registration & Continental Breakfast**
Poster Drop Off (formal poster session at 12:00-1:30pm)
Bring posters to registration and staff will set them up.

***** Plenary Session *****

8:15-8:30am **Welcome and Introduction**
Kevin Crosby, Director of WSGC; Chair, Natural Science Division, Professor of Physics, Astronomy and Computer Science, Carthage College

8:30-9:15am **Session 1: Keynote Address**
Introduction: Michael LeDocq, Chair, WSGC Advisory Council; Instructor, Department of Natural Science, Western Technical College

Keynote Speaker: Jeff Johnson, Environmental Control & Life Support Systems (ECLSS) Program Manager for SNC Dream Chaser

***** Plenary Session *****

9:15-10:00am **Session 2: Team Projects**
Moderator: William Farrow, WSGC Associate Director for Student Satellite Initiatives; Assistant Professor, Milwaukee School of Engineering

Simpson Street Free Press, *After-school Academic Newspaper*, **McKenna Kohlenberg**, Assistant Editor; **Taylor Kilgore**, Assistant Editor; **Ali Khan**, Teen Editor; **Lucy Ji**, Teen Editor

Balloon Payload Team, *The Elijah Project - 2014 High Altitude Balloon Payload*

Madeline Lambert, University of Wisconsin-La Crosse

Jadee Kellogg, Ripon College

Daniel Ochoa, Milwaukee School of Engineering

Evan Schilling, Milwaukee School of Engineering

Michael Stefik, University of Wisconsin-Milwaukee

Michael Wznitzer, Milwaukee School of Engineering

Balloon Launch Team, *2014 Elijah High Altitude Balloon Launch Team Flight Results*

Rachel Beyer, Marquette University

Amber Koeune, Milwaukee School of Engineering

Jordan Petrie, Milwaukee School of Engineering

Leeta Russell, Milwaukee School of Engineering

Michael Stefik, University of Wisconsin-Milwaukee

Alana Tirimacco, Milwaukee School of Engineering

10:00-10:15am **Morning Break**

***** Concurrent Sessions -- Research Stream *****

- 10:15-11:45am **Session 3R: Physical Sciences (Auditorium)**
Moderator: Leah Simon, Assistant Professor of Physics, Ripon College
- Madeline Wade**, *Searching for Gravitational Waves from Sub-Solar Mass Black Holes*, Graduate Student, Department of Physics, University of Wisconsin-Milwaukee
- Sydney Chamberlin**, *Black Holes, Lasers, and Data Analysis: Contributions to Gravitational Wave Searches with the Excess Power Pipeline*, Research Graduate Assistant, Department of Physics, University of Wisconsin-Milwaukee
- Colin Egerer**, *Clarifying the Role of Thermodynamics in Self-gravitating Dark Matter Systems*, Undergraduate Student, Department of Physics, University of Wisconsin-La Crosse
- Sean DuBois**, *Assessment of Ecosystem Photosynthetic Parameters Along Two California Climate Gradients*, Graduate Student, Nelson Institute for Environmental Studies, University of Wisconsin-Madison
- David Helminiak**, *Simulations of Granular Material Motion*, Undergraduate Student, Department of Computer Engineering, Marquette University
- Nathaniel Helminiak**, *Experiments with Granular Material Motion*, Undergraduate Student, Department of Mechanical Engineering, Marquette University

***** Concurrent Sessions -- Education Stream *****

- 10:15-11:45am **Session 3E: K-12 Education and General Public Outreach (Room 122)**
Moderator: Carol Lutz, Co-chair for Rockets for Schools, Sheboygan, WI
- Todd H. Treichel**, *Rocket Science for Educators Using Rocket Design and Simulation Software*, Senior Systems Engineer, Orbital Technologies Corporation; American Institute of Aeronautics and Astronautics (WI)
- Barbara Bielec**, *Science Outreach at the BTC Institute - Aerospace Outreach Program & Special Initiatives Program*, K-12 Program Director, BTC Institute
- Daniel Bateman**, *Teacher Workshop on Rocksim*, Executive Director, Spaceport Sheboygan
- John Heasley**, *Driftless Dark Skies Initiative: Training Astronomy Educators*, Space Science Educator, Star Stories
- Coggin Heeringa**, *Teaching Teachers*, Director, Crossroads at Big Creek
- Shelly Leshner**, *Promoting Women in Physics and Astronomy through a Distinguished Lecture Series*, Assistant Professor, Department of Physics, University of Wisconsin- La Crosse

11:45-1:15pm **Lunch and Poster Session**

*** Poster Session ***

Facilitator: Mike LeDocq, Chair, WSGC Advisory Council; Instructor, Department of Natural Science, Western Technical College

Brian Harvey, *Burn me Twice, Shame on Who? Testing for Wildfire Feedbacks in Forests of the US Northern Rocky Mountains*, Graduate Student, Department of Zoology, University of Wisconsin-Madison

Michael Brusich, *CAERENet*, Undergraduate Student, Department of Physics, Carthage College

Justin Collins, *Engineering Sustainable Space Nutrition Modules for Classroom Spiral Insertion*, Undergraduate Student, Department of Mechanical Engineering, Milwaukee School of Engineering and Sweet Water Foundation

David Helminiak, *Simulations of Granular Material Motion*, Undergraduate Student, Department of Computer Engineering, Marquette University

Nathaniel Helminiak, *Experiments with Granular Material Motion*, Undergraduate Student, Department of Mechanical Engineering, Marquette University

Tyler Laszczkowski, *Expanding Our Knowledge of Interstellar Neutral Hydrogen Shells*, Undergraduate Student, Department of Physics, University of Wisconsin-La Crosse

Brendan Krull, Tessa Rundle, Kevin LeCaptain, Amelia Gear, *The Onset of Normal Field Instability in a Ferrofluid in a Reduced Gravity Environment*, Undergraduate Students, Department of Physics, Carthage College

Jon Woods and Luke Goetsch, *Spatial ID Environmental Reader (SPIDER)*, Undergraduate Students, Software and Hardware Engineering, East Troy High School

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Amber Koeune, Milwaukee School of Engineering

Jordan Petrie, Milwaukee School of Engineering

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Michael Stefik, University of Wisconsin-Milwaukee

Alana Tirimacco, Milwaukee School of Engineering

1:15-1:30pm

Group Photograph (Atrium)

*** Research Stream ***

1:30-2:45pm

Session 4R: Space Systems Engineering (Auditorium)

Moderator: Kevin Crosby, Chair of Natural Science, Professor of Physics and Computer Science, Carthage College

Aaron Olson, *Implantation and Extraction of Helium from Lunar Regolith Simulant*, Graduate Student, Department of Engineering Physics, University of Wisconsin- Madison

Jalal Nawash, *Efficiency of Select Solar Cells at High Altitudes Using a Weather Balloon*, Assistant Professor, Department of Physics, University of Wisconsin- Whitewater

Todd Treichel, *Design and Development of LED Lighting System for Human Spacecraft*, Senior Systems Engineer, Orbital Technologies Corporation; American Institute of Aeronautics and Astronautics (WI)

Jeff Clark, *Remote Sensing of Physical Models in the Laboratory*, Professor, Department of Geology, Lawrence University

Trent Cybela, *Fire in Orbit: Equipping Commercial Spaceflight for Fighting Fires beyond Earth*, Undergraduate Student, ECLSS (Environmental Control and Life-Support Systems), Orbital Technologies Corporation & University of Wisconsin-Platteville

2:45-3:00pm **Afternoon Break**

***** Plenary Session *****

3:00-4:00pm **Session 5: Rocket Teams**

Moderator: William Farrow, WSGC Associate Director for Student Satellite Initiatives; Assistant Professor, Milwaukee School of Engineering

Rocket Team: First Place – Non-Engineering Division - Team Night Skies

The Flight of Wombat I, **Christine Sutherland, Aaron Jarosh and Grace Zeit**, Undergraduate Students, University of Wisconsin-Sheboygan

Rocket Team: Third Place – Engineering Division – Team Rocket

Alex Folz, Collin Matthews and Justin Collins, Undergraduate Students, Department of Mechanical Engineering, Milwaukee School of Engineering (non-presenting team members: Garrett Sauber and Roberto Fernandez)

Rocket Team: Second Place – Engineering Division – Woosh Generator

Eric Johnson, Stephan Skibinski and Leeta Russell, Undergraduate Students, Milwaukee School of Engineering, Department, Non-Presenting team members: James Ihrcke, Kathryn Baisley, Kirsti Pajunen

Rocket Team: First Place – Engineering Division - Pioneer Rocketry

Trent Cybela, Luke Sackash, Andrew Heindl, Jacob Ellenberger and Maria Smiles, *High Aspirations: Rocketry at the University of Wisconsin–Platteville*, Undergraduate Students, Multiple-Discipline Engineering (Mechanical, EP, Software, Electrical)

4:00-4:30pm **Awards Ceremony and Closing Remarks**

4:30-5:30pm **Reception**