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

CONFEREECE 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 Wiznitzer, 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 Lesher,** *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

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

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