

Wisconsin Space Grant Consortium

&

Marquette University

Present:

**the Twenty-Third Annual
WISCONSIN SPACE CONFERENCE**

***“Global Climate Change Impacts on
Lake Michigan”***

Marquette University
Milwaukee, Wisconsin

Thursday, August 15 – Friday, August 16, 2013

CONFERENCE 2013 PROGRAM

Thursday, August 16, 2013

8:00-8:45 am **Registration** **McCormick Hall**

Buffet Breakfast

Poster Drop Off (formal poster session at 2:45 p.m.)

Bring posters to registration and staff will set them up in the Engineering Hall foyer

To access Marquette WIFI: Start web browser and when prompted, enter:

Username: W-Conf5 Password: Gold2012

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

9:00-9:30 am **Welcome and Introduction** **Olin Engineering Bldg. 201**

Christopher Stockdale, Associate Professor of Physics, Marquette University

Richard (Rick) Holz, Dean, Helen Way Klinger College of Arts and Sciences,
Marquette University

Robert (Bob) Bishop, Opus Dean, College of Engineering, Marquette University

9:30-10:30 am **Session 1: Keynote Address**

Introduction of Keynote:

Michael LeDocq, Chair, WSGC Advisory Council and Instructor, Department of
Natural Science, Western Technical College

Prof. J. Val Klump, Senior Scientist and Director, Great Lakes Water Institute, *What
Lies Ahead for the Future of Freshwater and Our Great Lakes*

10:30-10:50 am **Morning Break** **outside Olin Bldg. 201**

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

11:00-11:45 am **Session 2: Rocket Teams** **Olin Engineering Bldg. 201**

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

Rocket Team: Second Place – Engineering Division – Team Jarts

Joe Hintz, Eric Logisz, Cameron Schulz, Undergraduate Students, Department of
Mechanical Engineering, Milwaukee School of Engineering, Non-presenting team
member: Brett Foster, *The Ripper II – Collegiate Rocket Competition*

Rocket Team: First Place – Engineering Division – Team Whoosh Generator, James Ihrcke, Eric Johnson, Undergraduate Students, Department of Mechanical Engineering, Milwaukee School of Engineering, Non-presenting team members: Victoria Falcon, Christopher Larson, Kirsti Pajunen

12:00-12:45 pm **Lunch**

McCormick Hall

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

1:00-2:30 pm **Session 3R: Physics**

Engineering Hall 236

Moderator: Eric Barnes, Associate Professor, Physics Department, University of Wisconsin-La Crosse

Sydney Chamberlin, *When Galaxies Collide: The Search for Low-Frequency Gravitational Wave Backgrounds in the Universe*, Graduate Student, Department of Physics, University of Wisconsin-Milwaukee

Justin Ellis, *Searching for Gravitational Waves with Pulsar Timing Arrays*, Graduate Student, Department of Physics, University of Wisconsin-Milwaukee

Kevin Crosby, *Fluid Mass Gauging in Spacecraft Propellant Tanks Using Modal Analysis*, Professor, Department of Physics, Carthage College

Joseph Krueger, *Conductivity and Optical Transmittance of ZnO/CuO Thin Films*, Undergraduate Student, Department of Physics, University of Wisconsin-La Crosse

Kerry Kuehn, *Physics: A Student's Guide through the Great Texts*, Associate Professor, Department of Physics, Wisconsin Lutheran College

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

1:00-2:30 pm **Session 3E: K-12 Education & General Public Outreach**

Engineering Hall 136

Moderator: Karin Borgh, Executive Director, BioPharmaceutical Technology Center Institute

Judy Schieble, *Elementary Rocket Launch II*, Chair, Elementary Rocket Launch/Program, Spaceport Sheboygan.

Todd Treichel, *Rocket Science for K-12 Educators Workshop*, Chairman, AIAA – Wisconsin Section and Senior Systems Engineer, Orbital Technologies Corp.

Coggin Heeringa, *Teaching Teachers through Outreach*, Director, Crossroads at Big Creek

Shelley Lee, *The Next Generation Science Standards Are Coming!*, Science Education Consultant, Department of Learning and Content, Wisconsin Department of Public Instruction

2:30-2:50 pm **Afternoon Break** **Engineering Hall foyer
(ground level)**

***** Plenary Session -- Poster Session *****

2:45-3:35 pm **Session 4P: Posters** **Engineering Hall foyer
(ground level)**

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

Karissa Metko, *Exploring Magnetic Fields around Terrestrial Exoplanets and Potentially Habitable Exomoons*, Undergraduate Student, Department of Astronomy, University of Wisconsin-Madison

Shane Wulf, *Testing Species-Abundance Models of the Hughes Creek Shale (Carboniferous) of Southeastern Nebraska*, Undergraduate Student, Department of Geography and Geology, University of Wisconsin-Whitewater

Daryl Johnson, *Size-Frequency Distribution and Taphonomy of Brachiopoda from the Hughes Creek Shale (Carboniferous) of Southeastern Nebraska*, Undergraduate Student, Department of Geography and Geology, University of Wisconsin-Whitewater

Teri Gerard, *Fumarole Alteration of Hawaiian Basalts: A Potential Mars Analog*, Graduate Student, Department of Geosciences, University of Wisconsin-Milwaukee

Danielle Weiland, *Degassing of FC-72 in Microgravity*, Undergraduate Student, Department of Physics, Carthage College

Tyler Nickel, *Single Photon Detection Using Quantum Dot-Gated RLC Resonant Circuits*, Undergraduate Student, Department of Physics, University of Wisconsin-La Crosse

Eric Ireland, *Zero-gravity Fuel Gauging Using Modal Analysis*, Undergraduate Student, Department of Physics, Carthage College

Balloon Launch and Payload Teams:

Elijah High Altitude Balloon Project, **Trent Cybela** (Payload team only), University of Wisconsin-Platteville; **Dan Kass**, Milwaukee School of Engineering; **Amber Koeune**, Milwaukee School of Engineering; **Nathaniel Pedigo**, Milwaukee School of Engineering; **Alana Tirimacco**, Milwaukee School of Engineering, Non-presenting team member: Danielle Weiland (Launch team only), Department of Physics, Carthage College

3:35-3:50 pm **Group Photograph** **Engineering Hall foyer
(ground level)**

***** Plenary Session – Research Session*****

4:00-5:00 pm **Session 4R: Chemistry and BioSciences** **Olin Engineering Bldg. 201**

Moderator: Danny Riley, Professor, Department of Cell Biology, Neurobiology, and Anatomy, Medical College of Wisconsin

Philip Gopon, *Low Voltage EPMA of Submicron Fe-Si Metals*, PhD Student, Department of Geoscience, University of Wisconsin-Madison

Vera Kolb, *Coacervates as Prebiotic Reactors*, Professor, Department of Chemistry, University of Wisconsin-Parkside

Rex Hanger, *Freshwater Snails as Indicators of Climate Change and Earth History*, Associate Professor, Department of Geography and Geology, University of Wisconsin-Whitewater

***** Adjourn for Day *****

Friday, August 17, 2013

8:00-8:45 am **Registration** **McCormick Hall**

Buffet Breakfast

8:00-8:45 am **Undergraduate Workshop** **McCormick Hall**

*** Plenary Session ***

9:00-10:00 am **Welcome and Introductions** **Olin Engineering Bldg. 201**
Christopher Stockdale, Associate Professor of Physics, Marquette University

Session 5: Keynote Address

Introduction of Keynote:

Dr. R. Aileen Yingst, Director, Wisconsin Space Grant Consortium and Co-Investigator on the MAHLI Microimaging Camera for Mars Science Laboratory

Prof. Hector Bravo, Chair of Civil Engineering and Mechanics, University of Wisconsin-Milwaukee, *Two Case Studies on Effects of Climate Variability and Climate Change on the Laurentian Great Lakes*

*** Plenary Session***

10:00-10:45 am **Session 6: Team Projects** **Olin Engineering Bldg. 201**

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

Simpson Street Free Press, *Science Learning and Writing Across the Curriculum in Out-of-School Time*, **Deidre Green**, Managing Editor; **Ashley Crawford**, Assistant Editor; **Taylor Kilgore**, Senior Editor

Balloon Payload Team, *The Elijah Project – Exploration with High Altitude Balloons*, Trent Cybela (Payload team only), University of Wisconsin-Platteville; **Dan Kass**, Milwaukee School of Engineering; **Amber Koeune**, Milwaukee School of Engineering; **Nathaniel Pedigo**, Milwaukee School of Engineering; **Alana Tirimacco**, Milwaukee School of Engineering; Non-presenting team member: Danielle Weiland (Launch team only), Carthage College

10:55-11:15 am **Morning Break** **Engineering Hall foyer**
(ground level)

***** Concurrent Research Sessions*****

11:20-12:30 pm **Session 7: Engineering**

Engineering Hall 136

Moderator: David Bruning, Distinguished Lecturer, Department of Physics, University of Wisconsin-Parkside

Todd Treichel, *Reliability Analysis of Light Emitting Diode Technologies for Cabin Lighting in Manned Space Flight Applications*, Chairman, AIAA – Wisconsin Section and Senior Systems Engineer, Orbital Technologies Corp.

Dr. Matthew J. Traum, Assistant Professor, Department of Mechanical Engineering, Milwaukee School of Engineering, *New Capabilities and Discovered Interconnectivities for a Curriculum-Integrated Multicourse Model Rocketry Project*, Non-presenting members: Dr. Vincent C. Prantil, Associate Professor, Dr. William C. Farrow, Associate Professor, Dr. Hope L. Weiss, Assistant Professor, Department of Mechanical Engineering, Milwaukee School of Engineering,

Zhiyuan Yang, Undergraduate Researcher, Department of Mechanical Engineering, Milwaukee School of Engineering, *Dynamic Dynamometry to Characterize Disk Turbines for Space-Based Power*, Non-presenting member: Dr. Matthew J. Traum, Assistant Professor, Department of Mechanical Engineering, Milwaukee School of Engineering,

Roberto J. Fernandez, Undergraduate Researcher, Department of Mechanical Engineering, Milwaukee School of Engineering, *Nitrogen Phase Separation at Terminal Velocity to Inform Design of Future Microgravity Cryogenic Rankine Power Cycles*, Non-presenting member: Dr. Matthew J. Traum, Assistant Professor, Department of Mechanical Engineering, Milwaukee School of Engineering.

11:20-12:30 pm **Session 7R: Planetary Geology and Astronomy**

Engineering Hall 236

Moderator: Gubbi Sudhakaran, WSGC Associate Director for Research Infrastructure; Chair, Department of Physics, University of Wisconsin-La Crosse

Lindsay McHenry, *Lassen Volcanic Fumaroles and Hot Springs: Analog for Mars*, Associate Professor, Department of Geosciences, University of Wisconsin-Milwaukee

Eric Barnes, *Towards a Better Understanding of Dark Matter*, Associate Professor, Department of Physics, University of Wisconsin-La Crosse

Cheuk Man Lo, *Examining Supernova remnant GSH054-00+003*, Undergraduate Student, Department of Physics, University of Wisconsin-La Crosse

12:45-1:30 pm **Awards Luncheon**

McCormick Hall

1:30-2:15 pm **Awards Ceremony** **McCormick Hall**

Dr. R. Aileen Yingst, Director, Wisconsin Space Grant Consortium
WSGC Program Associate Directors

2:15-2:20 pm **2014 Conference**

2:20-2:25 pm **Christopher Stockdale**

***** Adjournment *****