

Wisconsin Space Grant Consortium

&

University of Wisconsin-Whitewater

Present:

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

“From Earth to Galaxy”

University of Wisconsin-Whitewater
Whitewater, Wisconsin

Thursday, August 16 – Friday, August 17, 2012

CONFERENCE 2012 PROGRAM

Thursday, August 16, 2012

8:00-9:00 am **Registration** **Hyland Hall Atrium**
Continental Breakfast
Poster Setup (formal poster session at 2:30 p.m.)

*** Plenary Session ***

9:00-9:30 am **Welcome and Introduction** **2101 Hyland Hall**
Rex Hanger, Department of Geography and Geology, University of Wisconsin-Whitewater
Aileen Yingst, Director, Wisconsin Space Grant Consortium and Co-Investigator on the MAHLI Microimaging Camera for Mars Science Laboratory
Greg Cook, Associate Vice Chancellor, University of Wisconsin-Whitewater

9:30-10:30 am **Session 1: Keynote Address**
Introduction of Keynote:
Rex Hanger, Department of Geography and Geology, University of Wisconsin-Whitewater
Dr. John Delano, Professor at State University of New York at Albany and Associate Director of the New York Center for Astrobiology (NASA), *Astrobiology: NASA's Multi-Disciplinary Search for Life Beyond the Earth*

10:30-11:00 am **Morning Break** **Hyland Hall Atrium**

*** Plenary Session ***

11:00-11:45 am **Session 2: Engineering** **2101 Hyland Hall**
Moderator: Gerald Kulcinski, Associate Dean, College of Engineering, University of Wisconsin-Madison
Eric Gansen, *Can Quantum-Dot-Based Single-Photon Detectors Operate at Temperatures Above 4 Kelvin, or Are They Too NOISY*, Associate Professor, Department of Physics, University of Wisconsin-La Crosse

Kirsti Pajunen, *Dynamic Risk Assessment of Space-Flight Medical Events*, Undergraduate Student, Department of Mechanical Engineering, Milwaukee School of Engineering

Paul Thomas, *Infrasonic Detection*, Undergraduate Student, Department of Electrical Engineering, University of Wisconsin-Platteville

11:45-12:45 pm **Lunch**

University Center 275

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

12:45-2:15 pm **Session 3R: Physics, Astronomy, Meteorology**

2100 Hyland Hall

Moderator: Eric Barnes, Professor, Physics Department, University of Wisconsin-Stout

Mitch Powers, *A Novel Technique for Fabricating Devices with Complex Geometries*, Undergraduate Student, Department of Physics, University of Wisconsin-Madison

Christopher Stockdale, *A C-Band Study of the Historical Supernovae in M83 with the Karl G. Jansky Very Large Array*, Associate Professor, Department of Physics, Marquette University

Sydney Chamberlin, *Testing General Relativity with Pulsar Timing Arrays*, Graduate Student, Department of Physics, University of Wisconsin-Milwaukee

Shelly Leshner, *The Origin of the Elements*, Assistant Professor, Department of Physics, University of Wisconsin-La Crosse

Jordan Gerth, *Improving Cloud and Moisture Representation in Weather Prediction Model Analyses with Geostationary Satellite Information*, Graduate Research Assistant, Cooperative Institute for Meteorological Satellite Studies, University of Wisconsin-Madison

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

12:45-2:30 pm **Session 3E: K-12 Education & General Public Outreach**

2102 Hyland Hall

Moderator: John Heasley, Space Science Educator, Richland Center High School

James Lattis, *A Hubble Instrument Comes Home: The High Speed Photometer*, Director, UW Space Place, Department of Astronomy, University of Wisconsin-Madison

Brad Staats, *Spaceflight Academy for CESA #7*, CEO, Spaceflight Fundamentals, LLC.

Reynee Kachur, *Students Teaching Astronomy-Related Science (STARS) and the Impact to K-5th Grade Students in Oshkosh*, Science Outreach Director, Science Outreach Department, University of Wisconsin -Oshkosh

Reynee Kachur, *Launching STEM Interest: Using Rockets to Propel to Excel in STEM*, Science Outreach Director, Science Outreach Department, University of Wisconsin -Oshkosh

Barbara Bielec, *Geology on Earth and Mars! Summer Science for Grades 3-5 and 6-8*, K-12 Program Director, BioPharmaceutical Technology Center Institute

Barbara Bielec, *NASA and Biotechnology- Professional Development for Secondary Teachers*, K-12 Program Director, BioPharmaceutical Technology Center Institute

James Kramer, *Science Learning and the Achievement Gap*, Executive Director, Simpson Street Free Press; non-presenting contributors: Deidre Green, Managing Editor; Ashley Crawford, Teacher and Assistant Editor; Taylor Kilgore, Senior Teen Editor; and Alex Lee, Staff Writer

2:30-3:00 pm **Afternoon Break** **Hyland Hall Atrium**

***** Concurrent Session -- Poster Session *****

2:30-4:00 pm **Session 4P: Posters** **Hyland Hall Atrium**

Facilitator: Marty Gustafson, Chair, WSGC Advisory Council, Program Director for the Sustainable Systems Engineering Department of Engineering Professional Development at the University of Wisconsin-Madison

Matt Heer, *An Experiment Observing Convection Movement in Microgravity*, Science Teacher, East Troy High School; non-presenting members: Kaity Jaek, Tom Bellar, Sebastian Smith, Curran Schell, Jack Weber, Eric Saltzman, Haley Housch, Nick Frank, Danielle Otto, Alex Otto, Sam Wisniewski, Shauna Wisniewski

Megan Jones, *Population Analysis of the Coma-Abell1367 Supercluster*, Undergraduate Student, Department of Astronomy & Department of Physics, University of Wisconsin-Madison

Michael Ramuta, *X-Ray and Radio Emissions of AWM and MKW Clusters*, Undergraduate Student, Department of Astronomy, University of Wisconsin-Madison

Kelsey Meinerz, *A Simplified Model for Flagellar Motion*, Undergraduate Student, Department of Physics, Marquette University

Kimberly Callan, *Prandtl – The Flying Wing*, Undergraduate Student, Department of Engineering Mechanics and Astronautics, University of Wisconsin-Madison

Bradley Moore, *Development of a Passive Check Valve for Cryogenic Applications*, Graduate Research Assistant, Department of Mechanical Engineering, University of Wisconsin-Madison

Darren Pilcher, *The Carbon Cycle of Lake Michigan: Application of a Coupled Physical and Biological 3-D Model to Determine Productivity and Nutrient Cycling*, Graduate Student, Department of Atmospheric and Oceanic Sciences, University of Wisconsin-Madison

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

Third Place – Engineering Division – Team ChlAM

Maxwell Strassman, Chloe Tinius, Andrew Udelhoven, Undergraduate Students, Department of Engineering Mechanics and Astronautics, University of Wisconsin Madison

Balloon Launch Team:

Tyler Capek, University of Wisconsin-River Falls; **Richard Oliphant**, Milwaukee School of Engineering; **Devin Turner**, Marquette University; **Danielle Weiland**, Carthage College

***** Concurrent Session – Research Session*****

3:30-5:00 pm **Session 4R: Other Programs** **2101 Hyland Hall**

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

Rocket Team: First Place – Engineering Division – Team Woosh Generator, **Brandon Jackson, James Ihrcke, Kirsti Pajunen, Eric Johnson**, Undergraduate Students, Department of Mechanical Engineering, Milwaukee School of Engineering, Non-Presenting Team Member: Devin Dolby

Balloon Payload Team: Brock Boldus, Milwaukee School of Engineering; **Patrick Comiskey**, Milwaukee School of Engineering; **Latisha Jones**, Milwaukee School of Engineering; **Kate Mauk**, Milwaukee School of Engineering; **Ben Peterson**, Milwaukee School of Engineering; **Matthew Weichart**, Milwaukee School of Engineering

NASA Reduced Gravity Program: Aaron Olson, *UW-Madison SEED Zero-Gravity Experiment*, Undergraduate Students, Department of Engineering Physics and Department of Mechanical Engineering, University of Wisconsin-Madison, Non-Presenting Team Members: Joe Jaeckels, Austin Lemens, Nathan Rogers, Noah Rotter, Peter Sweeney, Lyndsey Bankers, Collin Bezrouk, Sam Moffatt, Grayson Butler, Aaron Riedel, Austin Gilbertson

NASA Reduced Gravity Program: Kevin Crosby, *Microgravity Research at Carthage College*, Professor, Department of Physics and Astronomy, Carthage College and **Steven Mathe**, *Microgravity Fuel Gauging Using Modal Analysis*, Undergraduate Student, Physics Department, Carthage College, Non-Presenting Team Members: Amber Bakkum, Kelli Ann Anderson, Kevin Lubick, John Robinson, Danielle Weiland

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

Friday, August 17, 2012

8:00-9:00 am **Registration** **Hyland Hall Atrium**

Continental Breakfast

8:00-8:45 am **Undergraduate Workshop** **2100 Hyland Hall**

*** Plenary Session ***

8:45-9:45 am **Welcome and Introductions** **2101 Hyland Hall**

Rex Hanger, Department of Geography and Geology, University of Wisconsin-Whitewater

Session 5: Keynote Address

Introduction of Keynote:

Rex Hanger, Department of Geography and Geology, University of Wisconsin-Whitewater

Dr. Robert Benjamin, Department of Physics, University of Wisconsin-Whitewater,
A Visitor's Guide to the Milky Way

*** Plenary Session***

9:45-10:30 am **Session 6: Miscellaneous Research** **2101 Hyland Hall**

Moderator: Kerry Kuehn, Assistant Professor, Physics Department, Wisconsin Lutheran College

Randy Wolfmeyer, *Teaching Special Relativity: A Software Aid for Spacetime Diagrams*, Lecturer, Department of Chemistry and Department of Engineering Physics, University of Wisconsin-Platteville

Christopher Anderson, *Intensity Mapping with 21cm Line of HI*, Graduate Student, Department of Physics, University of Wisconsin-Madison

Rebecca Shotwell, *Towards Billion-Body Dynamics Simulation of Granular Material*, Undergraduate Student, Department of Mechanical Engineering, University of Wisconsin-Madison

10:30-11:00 am **Morning Break** **Hyland Hall Atrium**

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

11:00-12:10 pm **Session 7: Team Projects**

2101 Hyland Hall

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

Rocket Team: First Place – Non-Engineering Division – UWL Rocket Team
Joe Krueger, Andrew Prudhom, Undergraduate Students, Department of Physics, University of Wisconsin-La Crosse, Non-Presenting Team Members: Richard Allenby, John Nehls

Rocket Team: Second Place – Engineering Division – Team Jarts
Cameron Schulz, Brett Foster, Eric Logisz, Alex Folz, Undergraduate Students, Department of Mechanical Engineering, Milwaukee School of Engineering

NASA Desert RATS: Aaron Olson, Jordan Wachs, *UW-Madison Badger Exploration Loft Team at NASA Desert Research and Technology Studies 2011*, Undergraduate Students, Department of Engineering Physics and Department of Mechanical Engineering, University of Wisconsin-Madison

Mars Desert Research Station: Aaron Olson, *110th Crew at the Mars Desert Research Station*, Undergraduate Students, Department of Engineering Physics and Department of Mechanical Engineering, University of Wisconsin-Madison, Non-Presenting Team Members: William Yu, Mark Ruff, Lyndsey Bankers

12:10-12:30 pm **Group Photograph**

As Directed

12:30-1:20 pm **Awards Luncheon**

University Center 259

1:20-2:15 pm **Awards Ceremony**

Sharon D. Brandt, Program Manager, Wisconsin Space Grant Consortium
WSGC Program Associate Directors

2:15-2:20 pm **2013 Conference**

2:20 pm **Conference Adjourned**

***** Adjournment *****