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 Lesher,** *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.

Reynée 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

Reynée 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


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 Lofti 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 ***