

## Featured Speakers (Thurs. & Fri.)

**Dr. Theodore R. Gull** – NASA Astrophysicist

Deputy Principal Investigator, Space Telescope Imaging Spectrograph  
Ted Gull grew up in South Dakota. He is a graduate of MIT, Cornell and Loyola College. Dr. Gull works in the Extraterrestrial Planets and Stellar Astrophysics office of the Astrophysics Science Division of NASA's Goddard Space Flight Center described on the previous page.

**Dr. Peggy Norris** – Sanford Underground Science and Engineering Laboratory  
"Origin of the Universe"

**Mr. Thomas V. Durkin** –Deputy Director, NASA South Dakota Space Grant Consortium. Tom is the Deputy Director of the NASA South Dakota Space Grant consortium, headquartered at the SD School of Mines & Technology in Rapid City. He has been in this position for the past 10 years. Tom has a Masters degree in Geology from SDSM&T and Bachelor's degree in Earth Science from Adelphi University in New York. He often visits schools to speak with students about space and NASA's missions. As the link between NASA and the citizens of South Dakota, the SD Space Grant Consortium strives to instill the spirit of exploration and discovery in students that is essential for the development of the nation's workforce, particularly in the fields of science, technology, engineering, and math. Tom will speak about NASA's highly successful Mars Exploration Rovers.

## Space Days Partners





## SD Space Grant Consortium Membership

- SD School of Mines & Technology
- SD State University
- USGS EROS
- Augustana College
- SD Discovery Center & Aquarium
- Black Hills State University
- University of South Dakota
- Dakota State University
- Badlands Observatory
- Sanford Underground Science & Engineering Laboratory at Homestake
- Science Applications International Corporation (SAIC)
- Black Hills Astronomical Society
- Kirby Science Discovery Center
- The Journey Museum
- Lower Brule Community College
- Oglala Lakota College
- Sinte Gleska University
- Lake Area Technical Institute
- Raven Industries
- RESPEC

**SD Space Days 2009:**  
*Journey Into Space*  
Grades 7-12  
October 1-2, 2009

To be held on the campus of:  
**South Dakota School of Mines & Technology**  
Rapid City



This **FREE event** is sponsored by the NASA South Dakota Space Grant Consortium, The Journey Museum, and South Dakota School of Mines & Technology with corporate sponsorship from 3M and Sam's Club. **Busing for Rapid City Area School District Schools is funded by the South Dakota Space Grant Consortium.**

- Experience interactive activities and visit with experts in aerospace, aeronautics, earth science, space science, computers, and robotics.
- Listen to featured NASA speakers and interact with the many science and engineering exhibitors on-site.
- An evening session with NASA Astrophysicist Dr. Ted Gull is open and Free to the public at the Journey Museum on Thursday October 1, 7:00-8:00 pm

## Schedule of Events

### Thursday October 1 & Friday October 2, 2009

**Registration Required**—To register your school group for **either** Oct. 1 **or** 2 (choose one day), contact Diane Melvin, Journey Museum 605-394-2535 or [education@journeymuseum.org](mailto:education@journeymuseum.org)

**Featured Speaker and Concurrent “Mission” Sessions at SDSM&T**  
9:00 AM, 9:40 AM, 10:20 AM, 11:00 AM, 11:40 AM, 12:20 PM, 1:00 PM, 1:40 PM  
(Ends at 2:10 PM) **Registered teachers must check in at SDSM&T’s Surbeck Center main entrance and will be given their schedule upon arrival.**

#### Speakers:

**Dr. Ted Gull** - NASA’s Astrophysicist will present *“Exploring the Universe from your Backyard and from Space”*

**Dr. Peggy Norris** – Sanford Underground Science and Engineering Laboratory

**Mr. Tom Durkin** – SD Space Grant Consortium will present *“Mars Mania”*

#### Missions:

Mission 1– **Light: Decoding Information from the Stars**...How do we know so much about a star? After all, it’s not like we can go out and take a scoop of the star and study it. Yet we are able tell how far away the star is, how fast it is moving, how heavy it is, how old it is, what it is made up of, and much more. All of this information is encoded in the light coming from the star. In this session we will explore light and how to decode this information.

Mission 2- **Radioactive!** ...This session will provide a safe and informative hands-on introductions to the basics of radioactivity and ionizing radiation. Through experimenting in interesting activities participants will encounter basic properties of radiation that we encounter (or hope not to!) in our daily lives!

Mission 3-**Gilligan’s Island Meets The Space Age**... We take electricity for granted every time we turn on a light switch. What does it take to make electricity? Participate in this activity and you’ll find out first hand that it takes mechanical power to generate electrical power. With a human-powered bicycle generator how many electrical things do you think we’ll be able to run? And for how long?

Mission 4-**STARBASE is exploring the science of flight**...Experience Bernoulli’s principle and the forces of flight with hands-on/minds-on activities. Come fly with us!!!

Mission 5-**SDSM&T Unmanned Aerial Vehicle (UAV) and Robotics Teams** - The UAV team builds an aerial vehicle to compete in the annual International Aerial Robotics Competition. The Robotics Team participates in robotic research with industry and government agencies designs and manufactures robots for competition. These teams work to build varying solutions to complete the competition and dedicate time to introduce precollege students to the field of robotics.

Mission 6-**SDSM&T Camp Teams Aero Design and Supermileage SAE Present** -The Aero Design Team designs an airplane capable of carrying the most weight possible given certain constraints on wing size, wing area and motor size. The Supermileage SAE Team is involved in the development and construction of a single-person, fuel-efficient vehicle powered by a small four-cycle engine.

Mission 7-**The Minnesota Planetarium Society’s Inflatable “ExploraDome”** - Step inside to experience an interactive virtual trip through the Cosmos.

Mission 8a and 8b-**STARLAB Planetarium**-Enter an inflatable dome and learn about the constellations in the night-time sky. You’ll learn which constellations are visible during the various times of the year and their locations in the sky.

Mission 9-**Advanced Materials Processing Center (AMP)** - SDSM&T Student Demos of research into cutting edge technologies such as Friction Stir Welding.

#### Exhibits and Exhibitors (Thursday and Friday)

- NASA
- South Dakota Space Grant Consortium
- Black Hills State University (BHSU)
- Sanford Underground Science & Engineering Laboratory
- Stinger Ghaffarian Technologies Inc.
- Bob Polcyn—Solar System Modeling
- Civil Air Patrol
- SDSU Aviation & Aerospace Career Education (ACE) Camp
- BHSU Science Club
- Materials & Metallurgical Engineering Dept., SDSM&T
- SDSM&T Inst. of Atmospheric Science
- Black Hills Astronomical Society

### Free Evening Presentation - Open to the public

#### Featured Speaker

#### Dr. Theodore R. Gull

Thursday, October 1 — 7:00-8:00 PM

#### *From Galileo’s first telescope to Hubble to Future Telescopes: Probing our Universe*

At the Journey Museum

222 New York Street — 605-394-6923

#### Dr. Theodore R. Gull—NASA Astrophysicist

Deputy Principal Investigator, Space Telescope Imaging Spectrograph  
Ted Gull grew up in Edgemont, SD. He has degrees from MIT (BS in physics), Cornell University (PhD, astronomy) and Loyola University (MBA) as well as an honorary degree from SDSMT. He works in the Extraterrestrial Planets and Stellar Astrophysics office of the Astrophysics Science Division (ASD) of NASA’s Goddard Space Flight Center. The ASD studies such questions as: How do galaxies, stars, and planetary systems form and evolve? Which planets might harbor life? What powered the big bang? What is the nature of the mysterious Dark Energy that is pulling the universe apart? What happens to space, time and matter at the edge of a black hole? What are the cycles of matter & energy in the evolving universe? Dr. Gull does research with multiple ground-based and space telescopes, working with astronomers around the world. Over the past several years, he has supported the upgrade of the Hubble Space Telescope. The success of the final Hubble servicing mission accomplished this past summer will be demonstrated in press conferences on September 9 and discussed in presentations during Space Days 2009.