

## **“NASA Robotics...Using Robots to Explore the Universe” Saturday, April 2, 2005**

**9:00 AM – 9:15 AM**

### **Welcome, Introductions, Goals for the Symposium**

- Peg Steffen, *NASA Explorer Schools Program Manager*  
Al Byers, *Director Professional Programs and e-Learning, NSTA*  
Dr. Jennifer Rochlis, *Human Factors and Robotics Engineer, NASA JSC*  
Dr. Brad Blue, *Coordinator GEMS (Girls in Engineering, Mathematics, and Science)*  
Julie Ferriss, *Curriculum Integration Coordinator, Edgewood Elementary-A  
Science, Math, and Technology School, Osseo School District*  
Sheri Klug: *Mars Education Program, Arizona State University*  
Flavio Mendez, *Program Manager, NSTA*
- College Credit forms
  - Pre-evaluation forms
  - Goals for the day

**9:15 AM – 10:00 AM**

### **Opening Activity: Exploration Mars! - The Value of a Common Language**

*Brad Blue and Julie Ferriss*

#### **Learning Outcome:**

- The learner will discover the importance of a common language when working with others to find solutions to challenges and/or problems.

**10:00 AM – 10:10 AM**

### **Mid-morning Break**

**10:10 AM – 10:55 AM**

### **Core Content Presentation 1: “NASA’s Robotics Technology”**

*Dr. Jennifer Rochlis*

#### **Learning Outcome:**

- The learner will gain knowledge of the past, present and future of robotics technologies at NASA.

**10:55 AM – 12:10 PM**

### **Pedagogical Follow-up: “Exploration Mars! - Why Did It Do That? Beginning Lego Programming”**

*Brad Blue and Julie Ferriss*

#### **Learning Outcomes:**

- The learner will observe and record the behavior of a robot and correlate that behavior with the iconic language of the ROBOLAB software.
- The learner will use the language of programming to communicate desired behaviors of the robot to others.

**12:10 PM – 12:50 PM**

**Lunch Break**

**12:50 PM – 1:35 PM**

**Core Content Presentation 2: “Human and Robotics Operations for Surface Missions”**

*Dr. Jennifer Rochlis*

**Learning Outcomes:**

- The learner will gain knowledge of the challenges of working on the surface of the moon and Mars.
- The learner will gain knowledge about how humans and robots will work together during future surface missions.

**1:35 PM – 3:05 PM**

**Pedagogical Follow-up: “Exploration Mars: More Robotic Programming!”**

*Brad Blue and Julie Ferriss*

**Learning Outcome:**

- Using previously acquired iconic language, learners will program a robot to perform specific tasks and functions in a simulated Mars mission setting.

**3:05 PM – 3:15 PM**

**Mid-afternoon Break**

**3:15 PM – 4:30 PM**

**Pedagogical Follow-up: Mars Education Overview and Marsbound**

*Sheri Klug*

**Learning Outcomes:**

- The learner will gain knowledge of the resources available from the NASA Mars Program.
- The learner will gain knowledge about methods of teaching science, mathematics, and technology using real-world space-science applications.

**4:30 PM – 5:00 PM**

**Post-evaluation form**

**Perception Feedback Survey**

**Raffle for prizes**

*Flavio Mendez, NSTA*

**Standards Addressed:**

**Professional Development Standard B**

Knowledge of Science Teaching

- Address teachers' needs as learners and build on their current knowledge of science content, teaching, and learning.
  
- Use inquiry, reflection, interpretation of research, modeling and guided practice to build understanding and skill in science teaching.

**Content Standard A**

Abilities Necessary to do Scientific Inquiry

- Use appropriate tools and techniques to gather, analyze, and interpret data.

**Content Standard E**

Abilities of Technological Design

- Communicate the process of technological design.

**Content Standard F**

Science and Technology In Society

- Science and technology have contributed enormously to economic growth and productivity among societies and groups within societies.