

# Ideas and Technology of Control Systems

## NSF Workshop for Middle and High School Teachers and Students

Open to all CDC Participants

**9:30–3:30, Tuesday, December 9, 2003**

**Spats Trattoria Hyatt Regency Maui Resort, Maui, Hawaii**

**Organizer:** Bozenna Pasik-Duncan (University of Kansas), Chair of CDC Control Education Activities and of CSS Technical Committee on Control Education  
**Sponsored by:** CSS Technical Committee on Control Education, 2003 CDC, National Science Foundation, University of Kansas  
**Participants:** Maui District Middle and High School Students with their Teachers and Invited High School Teachers from Previous Workshops

**9:30 a.m.** Welcome

- Bozenna Pasik-Duncan, Chair of the TC on Control Education
- Cheryl Schrader, President of CSS
- Miroslav Krstic, Vice President for Technical Activities
- Frank Lewis, General Chair of the 2003 CDC Conference
- Chaouki Abdallah, Program Chair of the 2003 CDC Conference
- Kishan Baheti, Program Director, National Science Foundation

**9:45 a.m.** Session I (Chair: Molly Shor, Oregon State University)

- **Raffaello D'Andrea** (Cornell University), “Robots Playing Soccer”
- **Christos Cassandras** (Boston University), “Joys and Perils of Automation”
- **Theodore Djaferis** (University of Massachusetts), “The Power of Feedback”
- **Brian Rosen**, (Pixar Animation Studios) “Better Movies through Mathematics”
- **Richard Murray**, (California Institute of Technology) “Autonomous Vehicles: Racing from Los Angeles to Las Vegas”

**11:45 a.m.** Lunch Break

**12:30 p.m.** Session II (Chair: Jing Sun, University of Michigan)

- **Shane Haas** (AlphaSimplex Group, L.L.C., Cambridge, MA) “How to Turn a Single Dollar into Billions”
- **Mark W. Spong** (University of Illinois), “Future Careers in Embedded Systems, Mechatronics and Control”
- **Katsuhisa Furuta** (Tokyo Denki University), “Understanding Phenomena through Real Physical Objects – Understanding Controlling Pendulum”
- **Suzanne Lenhart** (University of Tennessee), “Optimal Control of Biological Models”
- **Kishan Baheti** (National Science Foundation), “NSF Research and K-12 Education—A Winning Partnership”

**2:35 p.m.** Session III (Chair: Floyd Hanson, University of Illinois)

- Interactive Poster Session with NSF Research Experience Undergraduate Program students and Control graduate students
- Meet with Control researchers.

**3:00 p.m.** Discussion and Evaluation of Workshop, (Chair: Bozenna Pasik-Duncan)

**3:30 p.m.** Farewell

The purpose of the workshop is to expose high school students and teachers to control applications and research, to describe control and systems ideas and technology, and to increase the general awareness of the importance of control and systems technology and its cross-boundary nature among high school students and teachers.