

## **Report of the Technical Committee on Control Education**

for the period : July 2007 – November, 2007

Prepared by **Bozena Pasik-Duncan**, Chair

November 11, 2007

### **The Control Education Committee reports the following activities:**

#### **1. Special Evening Session**

was open to all participants of the ACC'07  
and was held on Wednesday, July 11th, 6:00 pm - 8:30 pm

Panel Session with participants of the ACC'07 Control Methods in the Finance Track as panelists and with over 100 participants representing students both: of mathematics and of engineering, academia and industry.

The theme of the session was: "Merging Engineering and Mathematics in Finance. Can Mathematical Finance and Financial Engineering Programs attract students to study engineering, math and science?"

The Session was sponsored by the CSS and AACC Technical Committees on Control Education with Bozena Pasik-Duncan as Chair of the Session.

**Recommendations** were made by participants to organize the invited sessions on Control Methods in Finance at the ACC'08.

The proposal for two invited sessions was submitted for the ACC'08 as the result of this Panel Session.

#### **2. Semiannual Meeting of the Committee on Control Education and Reception**

was open to all participants of ACC'07 and was  
on Thursday, July 12, 5:45 pm - 7:15 pm

The meeting was chaired by Bozena Pasik-Duncan and a special guest speaker was :

**Virginia (Ginger) Warfield**, the 2007 AWM L. Hay Award Recipient,  
University of Washington .

She gave a talk on:

**The Joys and Hazards of Striding Confidently along an Invisible Path**

**Abstract:** I headed towards my career with my eye firmly on the wide (if sometimes slippery) highway of research, publications and tenure at some university or other. Then came August of 1970, when someone dangled in front of me a chance to direct an exciting program involving mathematics and inner city children, enhanced by the information that if I didn't do it the program probably couldn't come to my city, and I veered straight off the highway. Few of my decisions since then have been as dramatic, but each has put me on some path of whose direction I was certain, but of whose ultimate destination and intermediate veerings I knew remarkably little. Looking back, I see plenty of things I wish I had done better, but very few big choices that I regret. I have been extremely fortunate!

This Lecture was sponsored by NSF, CSS and AACC Technical Committees on Control Education and CSS Standing Committee on Women in Control.

By talking about her contributions to education through her teaching, graduate student training and mentoring, and outreach and collaborations with K-16 communities, **Ginger Warfield** was very inspirational to many of control community members, in particular to young members of our community who were looking for examples of educational activities with a "broader impact", an important part of NSF research proposals.

**The purpose of the meeting was:** This meeting was organized with the mission to help CSS Control Community to assist the 2007 President of the IEEE on her goals: "to foster programs and activities that promote greater visibility for the IEEE and our profession, not only to employers but also to a wide range of public", Lean H. Jamieson, the President's column, in March 2007, Vol.31, No1 of the Institute.

**The output of the meeting :** Ginger Warfield as a resident of Seattle will be instrumental in organizing the next workshop for Seattle high school teachers at the ACC'08.

**The following activities are planned at the CDC'07 in New Orleans:**

**3. NSF High School Students & Teachers Workshop:**

**"The Power, Beauty and Excitement of the Cross-Boundaries Nature of Control"**

on Tuesday, December 11, 9:00 AM - 2:00 PM,

**Workshop Sponsors:**

National Science Foundation, USA  
The IEEE Control Systems Society  
University of Kansas, Lawrence, KS, USA

**Workshop Organizers:**

CSS Technical Committee on Control Education  
IFAC Technical Committee on Control Education  
AACC Technical Committee on Control Education

**Workshop Program Committee:**

Kishan Baheti, NSF  
Richard Murray, California Institute of Technology  
Bozena Pasik-Duncan, University of Kansas  
Mark Spong, University of Illinois at Urbana- Champaign  
Pamela Whiffen, Scottsdale Unified School District, AZ

**Workshop Chair:**

Bozena Pasik- Duncan, University of Kansas,

**Workshop Co-Chair:**

Pamela Whiffen, Scottsdale Unified School District, AZ

**Program and Speakers:**

The Workshop aims to inspire interest from youth towards studies in Control Systems and to assist high school teachers in promoting the discipline of Control Systems among their students. It is composed of several short but effective presentations on various problems from the real world that have been solved by using control engineering methods, techniques and technologies. The Workshop brings together all-star teams of some of the most eminent senior control researchers and some of the most prominent younger researchers involved in new technologies to present control systems as an exciting and intellectually stimulating field. The attractiveness and excitement of choosing a career in control engineering will also be addressed. Live interaction between the presenters and the audience is to be an important feature of the Workshop. The Workshop is open to all participants of the CDC'07.

**4. Special Evening Session on Control Education**

will be open to all participants and will be held at CDC'07 on Wednesday, December 12

**The purpose of the session is:** to prepare a series of short presentations for a wide range of the Public. It expected to prepare the set of these talks for publication.

### **Plain Talk on Control for a Wide Range of the Public**

Sponsored by the CSS and AACC Technical Committees on Control Education

Bozenna Pasik-Duncan  
Organizer and Chair  
University of Kansas

Fahmida Chowdhury  
Co-Chair  
University of Louisiana, Lafayette

The session consists of the following presentations:

- *The Power of Feedback*, by Theodore Djaferis, University of Massachusetts Amherst.
- *JOYS AND PERILS OF AUTOMATION*, by Christos G. Cassandras, Dept. of Manufacturing Engineering and Center for Information and Systems Engineering Boston University .
- *Control Education and the DARPA Grand Challenge*, by Richard M. Murray, Control and Dynamical Systems, California Institute of Technology.
- *The Next Phase of the Information Technology Revolution*, P.R. Kumar, University of Illinois, Urbana-Champaign.
- *Controlling Air Traffic*, by Claire Tomlin, University of California, Berkeley.
- *Control in Mechatronics and Robotics*, by Mark Spong, University of Illinois, Urbana-Champaign.
- *Some uses for Computer-Aided Control System Design Software in Control Education*, by William S. Levine and Dimitrios Hristu-Varsakelis, University of Maryland.
- *Application of Control Theory to the Problem of Epilepsy* by Ivan Osorio, University of Kansas Medical Center and Mark Frei, Flint Hills Scientific, L.L.C..
- *Random walk around some problems in stochastic systems and control.*, by Dominique Duncan, Yale University, Tyrone Duncan and Bozenna Pasik-Duncan, University of Kansas.
- *Understanding Phenomena through Real Physical Objects—Controlling Pendulum*, by Katsuhisa Furuta, Tokyo Denki University, Japan.
- *Risk Engineering---Past successes and future challenges*, by John Baillieul, Intelligent Mechatronics Laboratory.