

## BIG Events at JMM 2009

Phil Gustafson

The Business, Industry, and Government Special Interest Group of the MAA (BIG SIGMAA) helps to build partnerships and to increase awareness of opportunities for mathematicians in business, industry, government, and academia. The BIG SIGMAA has an active listserv and organizes events every year at the Joint Mathematics Meetings of the AMS and MAA. At the recent JMM in Washington D.C., the BIG SIGMAA hosted a paper session, an invited lecture, and a catered reception.

These events were open to all conference participants, and all were very well attended.

The BIG SIGMAA paper session featured outstanding presentations covering a diverse field of topics. The speakers and their topics are listed below.

- John Gray, U.S. Navy, *The Doppler Effect in Radar as a Source of Mathematics*
- Edmond Nadler, Eastern Michigan University, *Mathematical Surface Modeling Problems in Industry*
- William Fox, Naval Postgraduate School, *Dynamical Systems Modeling in Iraq*
- Joni Baker, Wagner Associates, *Automated Torpedo Classification and Alerting Using Bayesian Methods*
- Travis Cogdill, University of North Texas, *Least Cost Check Routing*
- David Joyner, U.S. Naval Academy, *A Short BIG Introduction to Sage*

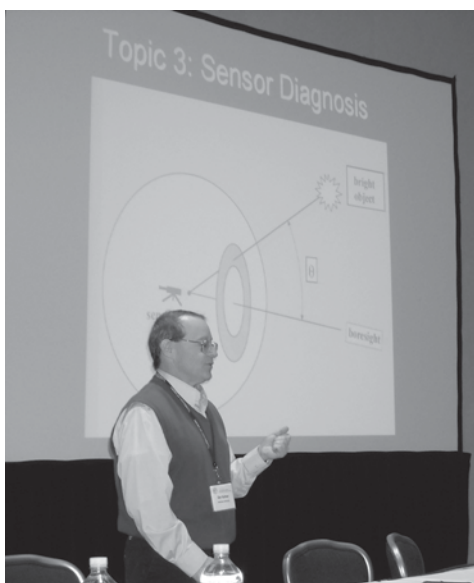
- Paul Schuette, FDA, *A Mathematical Consideration of the Rule of Three*
- Richard Jarvinen, Winona State University, *Reliability as a Field in Aerospace: A NASA Application*
- James Fife, Educational Testing Service, *A Measure of Inter-Rater Reliability When One Rater is Rating on a Continuous Scale*
- George Woodrow, *Effective Use of Controls in the Clinical Laboratory: Analysis of Traditional and New Algorithms*
- Mike O'Leary, Towson University, *Determining an Optimal Search Area for a Serial Criminal*

This year's BIG SIGMAA Lecture was given by Dan Kalman, who worked in the aerospace industry for eight years before joining the faculty of American University in 1993. His entertaining presentation, "Mathematics in Orbit," highlighted satellite system related problems that can be analyzed using methods of undergraduate mathematics, including geometry, linear algebra, vector calculus, and graph theory.

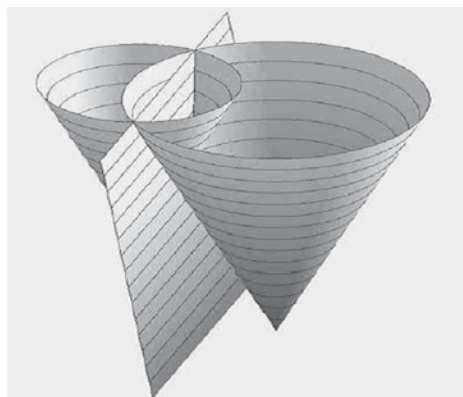
For example, he explained how the GPS system uses a process of space-time triangulation to obtain both a receiver's location and clock time. They are determined by a system of quadratic equations, which can be reduced to a single quadratic equation using standard methods of linear algebra.

MAA members interested in learning more about mathematics in business, industry, and government should look for BIG SIGMAA events at next year's JMM. You can also find out more about BIG SIGMAA, and of course the other SIGMAAs, at the MAA website. 🍷

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Dan Kalman was the speaker for the BIG SIGMAA Invited Lecture, *Mathematics in Orbit*.



Intersecting light-cones are at the heart of space-time triangulation (from Dan Kalman's BIG SIGMAA Invited Lecture, *Mathematics in Orbit*).