Geometric Combinatorics and the Social Sciences

Francis Su, Harvey Mudd College

Saturday, October 14, 2006

9:30 AM-2:30 PM [Central (Chicago) Time]

Valparaiso University in Valparaiso, Indiana

Topic: Combinatorics and the Social Sciences.

In this workshop, we'll explore several examples of how mathematics can be used to model problems in the social sciences. In particular, we'll discuss ideas from geometry and combinatorics that are useful in understanding the mathematics of preferences. Examples include: predicting how people might vote (as in predicting properties of an election outcome) or how people can make equitable decisions (as in the classical "fair division" question--- how to divide a cake or other things fairly).

The material is likely to appeal to a wide spectrum of the mathematical community. The background assumed will be minimal, but along the way we'll see connections to discrete mathematics, geometry, topology, and linear algebra that would make the material useful for incorporation into such courses.

Format: Workshop format with time to investigate and interact in small groups.

Cost:

- Faculty: $30 for early registration, materials, lunch. Late registration $40
Undergraduate and Graduate Students: $10 for registration, materials and lunch. $20 for late registration.

(Late registration deadline to be determined).

Biography: Dr. Francis Su is a Professor of Mathematics at Harvey Mudd College in Claremont, California and has held visiting positions at Cornell and MSRI. He received his Ph.D. in Mathematics from Harvard University. His research interests include random walks on groups and geometric combinatorics with applications to mathematical economics. He has received several awards for his writing and his teaching including the Merten M. Hasse Prize in 2001 for excellence in expository writing and the Henry L. Alder Award in 2004 for excellence in teaching. In 2006, he was an MAA invited speaker at the Joint Mathematics Meeting in San Antonio and will give the James R.C. Leitzel Lecture at Mathfest in the Knoxville, Tennessee. Currently, he serves on the Editorial Board of Math Horizons and maintains his "Math Fun Facts" website. His other hobbies include songwriting, theology, and outdoor activities.

Further links:

- Francis Su's website: [http://www.math.hmc.edu/~su/](http://www.math.hmc.edu/~su/)
  - Francis Su's curriculum vitae [http://www.math.hmc.edu/~su/vita.html](http://www.math.hmc.edu/~su/vita.html)
- Math Fun Facts (created and maintained by Francis Su) [http://www.math.hmc.edu/funfacts/](http://www.math.hmc.edu/funfacts/)
- The Fair Division Calculator [http://www.math.hmc.edu/~su/fairdivision/](http://www.math.hmc.edu/~su/fairdivision/)

Contributed Talks: Since the Indiana MAA section is experimenting with a modified format for this fall meeting, there will be no contributed talks at this meeting. Presentations will be welcome at the spring 2007 meeting (University of Indianapolis) and the fall 2007 meeting (Manchester College).