

Center for Applied Mathematical Sciences Distinguished Lecturer, Spring 2013



Fan Chung Graham

Can you hear the shape of a network? New directions in spectral graph theory

Abstract: We will discuss some recent developments in several new directions of spectral graph theory, including random walks for directed graphs, ranking algorithms, graph gauge theory, network games, graph limits and graphlets, for example.

Fan Chung Graham received a B.S. degree in mathematics from National Taiwan University in 1970 and a Ph.D. in mathematics from the University of Pennsylvania in 1974, after which she joined the technical staff of AT&T Bell Laboratories. From 1983 to 1991, she headed the Mathematics, Information Sciences and Operations Research Division at Bellcore. In 1991 she became a Bellcore Fellow. In 1993, she was the Class of 1965 Professor of Mathematics at the University of Pennsylvania. Since 1998, she has been a Distinguished Professor of Mathematics and Professor of Computer Science and Engineering at the University of California, San Diego. She is also the Paul Erdos Professor in Combinatorics and she held the Akamai Chair in Internet Mathematics.

Her research interests are primarily in graph theory, combinatorics, and algorithmic analysis. She pioneered the geometric approach of spectral graph theory and, together with Ron Graham, she developed the study of quasi-random graphs, connecting extremal graph theory with random graph theory. Her recent research includes probabilistic analysis of complex networks and local algorithms using PageRank vectors.

She is currently the Editor-in-Chief of the Journal of Combinatorics as well as the Journal Internet Mathematics.

Her honors include the Allendoerfer Award of the MAA, the Noether Lecture of the AMS, and an invited ICM address. She is a Fellow of AMS and since 1998 she has been a member of the American Academy of Arts and Sciences.

**Monday, March 4, 2013
University of Southern California
Kaprielian Hall**

**Reception: 3:00 p.m.
KAP 410**

**Lecture: 3:30 p.m.
KAP 414**

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