Dr. Kwangil Koh

Dr. Kwangil Koh was born in Seoul, Korea, the eldest son of Dr. Moonyoung Koh and Onsoon Koh. At the outbreak of the Korean conflict, he interrupted his education at Seoul National University to volunteer for duty in the South Korean armed forces. He served three years and was honorably discharged with the rank of captain at the end of hostilities.

Koh attended Auburn University, where he received B.S. and M.S. degrees in 1959 and 1960, respectively. He then completed his doctoral research at the University of North Carolina at Chapel Hill, receiving his Ph.D. in 1964. Koh joined the faculty at NC State University later that year and rose to the position of full professor in 1968.

Koh's lifelong commitment to education was a cardinal feature of his tenure at NC State. For many years, he served as an examiner in the William Lowell Putnam Mathematical Competition conducted by the Mathematical Association of America. He taught thousands of students over the course of his career until his retirement in 2004, continuing to teach part-time and actively participate in the research and educational activities of the department until the time of his death.

Dr. Kwangil Koh died on January 26, 2009. His generous spirit, powerful intellect and profound integrity remain an inspiration to his friends, family and colleagues.

This public lecture is the ninth in an annual series honoring our late colleague. The goal of the Koh lectures is to communicate the importance of mathematics and its impact on science, technology and society. The Kwangil Koh Lecture is supported by the Department of Mathematics and the friends and colleagues of Kwangil Koh.

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Kwangil Koh Lecture

Information Dynamics on Social Networks

Dr. Robert Ghrist
Andrea Mitchell PIK Professor of Mathematics
and Electrical and Systems Engineering
University of Pennsylvania

Associate Dean of Undergraduate Education
School of Engineering and Applied Science

Wednesday, January 24, 2024

5:30 p.m.

2203 SAS Hall

About the Speaker

Robert Ghrist is the Andrea Mitchell PIK Professor of Mathematics and Electrical and Systems Engineering at the University of Pennsylvania and the associate dean of undergraduate education for the School of Engineering and Applied Science.

Ghrist earned his B.S. in mechanical engineering from the University of Toledo in 1991 and his M.S. and Ph.D. in applied mathematics from Cornell University in 1994 and 1995, respectively. Before joining UPenn in 2008, he held positions at the University of Texas (Austin), Georgia Tech and the University of Illinois (Urbana-Champaign).

Ghrist is a recognized leader in applied algebraic topology and an award-winning expositor of mathematics and its applications. He is the author of a leading textbook on the subject, *Elementary Applied Topology*.

Abstract: Information Dynamics on Social Networks

Social networks play a crucial role in how we share and discuss ideas. This talk delves into the mathematics behind the spread of information (such as opinions or beliefs) on these networks. Imagine a network as a complex web, where each node represents an individual and the connections represent interactions. Opinions, beliefs, arguments, and other social contagions reside in data structures atop this social network, and the dynamics of such information flows don't always converge to consensus, leading to phenomena like polarization.

The talk will touch on classical and novel approaches to modeling these dynamics using ideas from network theory, differential equations, and algebraic topology.

The talk is a general-level exposition aimed at all who are curious about the intersection of mathematics and social information dynamics. A little bit of exposure to vectors and linear algebra may be useful, but no sophisticated mathematical prerequisites will be assumed.