"Wishart, Wigner and Weather – Eigenvalues in Statistics and Beyond"

Synopsis of the Lecture

The Wishart distribution and its eigenvalues, perhaps better known through Principal Components Analysis, have played a fascinating role in statistics and its manifold areas of application, from genetics to signal processing and beyond. This talk will meander idiosyncratically through some of the ideas and connections that have arisen over nearly a hundred years, beginning with Fisher and Wishart, detouring (briefly) through nuclear physics and meteorology and arriving at some recent developments.

The Chinese University of Hong Kong

Public Lecture by Wei Lun Visiting Professor

Professor Iain Johnstone

Marjorie Mhoon Fair Professor of Quantitative Science
Standford University, USA

on

"Wishart, Wigner and Weather – Eigenvalues in Statistics and Beyond"

(in English)

on

Wednesday, 25 November 2009 at 4:30 pm

in

T Y Wong Hall, 5/F Ho Sin-Hang Engineering Building
on the University Campus
in Shatin, the New Territories

Sponsored by Wei Lun Foundation Ltd.

Professor Iain Johnstone

A Biographical Sketch

Professor Iain Johnstone is Marjorie Mhoon Fair Professor in Quantitative Science in the Department of Statistics at Stanford University. He has been a member of the Department of Statistics, Stanford University since 1981 and served as its chair from 1994 to 1997. He was also a member of the university's Humanities and Sciences Appointments and Promotions Committee from 2000 to 2002 and has held a joint appointment in biostatistics in the Department of Health Research and Policy, School of Medicine, since 1986.

Professor Johnstone's work in theoretical statistics aims to provide insight into methods of data analysis in diverse areas of science and medicine. He has used ideas from harmonic analysis, such as wavelets, to understand noise-reduction methods in signal and image processing. His papers on these topics contributed to his ranking as the third-most-cited mathematician in the world during the 1990s. More recently, he has applied random matrix theory to the study of high-dimensional multivariate statistical methods. In biostatistics, he has collaborated extensively with investigators in cardiology and prostate cancer.

A native of Australia, Professor Johnstone has been recipient of a Guggenheim Fellowship, the Presidents' Award from the Committee of Presidents of Statistical Societies, the Alfred P. Sloan Research Fellowship, the Presidential Young Investigator Award and the Guy Medal in Bronze from the Royal Statistical Society. He is also an elected member of the US National Academy of Sciences, the American Academy of Arts and Sciences and the International Statistical Institute, and a fellow of the American Association for the Advancement of Science, the Institute of Mathematical Statistics and the American Statistical Association.

At Stanford, Professor Johnstone has served as department chair of Statistics, Senior Associate Dean for Natural Sciences and Vice Dean of the School of Humanities and Sciences. He has served as president of the Institute of Mathematical Statistics and as an adviser to the National Research Council, the National Science Foundation and the National Institutes of Health. He currently chairs the Advisory Committee for Mathematical and Physical Sciences at the US National Science Foundation