Distinguished Lecture Series

Public Lecture

Beyond Linear Algebra

Professor Bernd Sturmfels
University of California at Berkeley

Biological Sciences Room 101
Thursday, March 26, 2015 at 4:00 p.m.
Reception after the Lecture in Biological Sciences Lobby

Abstract:

Linear algebra is the foundation of scientific computing and its numerous applications. Yet, the world is nonlinear. In this lecture we argue that it pays off to work with models that are described by nonlinear polynomials, while still taking advantage of the power of numerical linear algebra. We offer a glimpse of applied algebraic geometry, by discussing current trends in tensor decomposition, polynomial optimization, and algebraic statistics. Students will especially enjoy the illustrations of these concepts by many colorful pictures.

Brief Biography:

Bernd Sturmfels received doctoral degrees in Mathematics in 1987 from the University of Washington, Seattle, and the Technical University Darmstadt, Germany. After postdoctoral appointments in Minneapolis and Linz, Austria, he taught at Cornell University, before joining UC Berkeley in 1995, where he is Professor of Mathematics, Statistics and Computer Science. His honors include a National Young Investigator Fellowship, a Sloan Fellowship, and a David and Lucile Packard Fellowship, a Clay Senior Scholarship, an Alexander von Humboldt Senior Research Prize, the SIAM (Society for Industrial and Applied Math) von Neumann Lecturership, and a Sarlo Distinguished Mentoring Award. Recently, he served as Vice President of the American Mathematical Society (AMS). Dr. Sturmfels is a Fellow of the AMS and of SIAM. A leading experimentalist among mathematicians, Sturmfels has authored ten books and over 220 research articles, in the areas of combinatorics, algebraic geometry, symbolic computation and their applications. He has mentored 37 doctoral students and numerous postdocs. His current research focuses on algebraic statistics, optimization, and computational algebraic geometry.

Sponsors:

- Linda J.S. Allen, Horn Professor, Texas Tech University
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