



Department of
Mathematical Sciences

Colloquium

Dr. Luis David Garcia Puente

Professor of Math and Computer Science

Colorado College

Friday,
September 9th, 2022
@ 2:00pm

EMS Building, E495



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Garcia Puente**

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An Introduction to Algebraic Statistics

Algebraic statistics is an interdisciplinary field that uses tools from computational algebra, algebraic geometry, and combinatorics to address problems in statistics and its applications. A guiding principle in this field is that many statistical models of interest are semialgebraic sets—a set of points defined by polynomial equalities and inequalities. Algebraic statistics is not only concerned with understanding the geometry and algebra of the underlying statistical model, but also with applying this knowledge to improve the analysis of statistical procedures, and to devise new methods for analyzing data.

Algebraic statistics is a broad field actively expanding from discrete statistical models, contingency table analysis, and experimental design to Gaussian models, singular learning theory, and applications to phylogenetics, machine learning, and biochemical reaction networks. In this talk, I will introduce this field by discussing the foundational Diaconis-Sturmfels approach to contingency table analysis. This talk will be accessible to undergraduate students with some knowledge of linear algebra and basic statistics.

Refreshments will be served in EMS, E495 following this event.



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