

Guest Speaker: Dr. Luis Montejano

**Institute of Mathematics National
Autonomous University of Mexico**

Convex Bodies All Whose Hyperplane Sections are “Equal”

Abstract:

Suppose K is an n -dimensional convex body all whose hyperplane sections are “equal”. Is K “like” a ball? Of course here “equal” and “like” have different meanings. For example, they may mean: same $(n-1)$ -dimensional volume, congruent, similar, affinely equivalent, etc. We shall make an historical review of these problems and the techniques used in their proofs. For example this problem in the case of affine equivalence is the Isometric Banach Conjecture, where its proof uses Convex Geometry, in particular characterization of ellipsoids and Topology of Lie groups. We shall also review this problem in the complex case and also this problem for projections instead of sections.

About the speaker:

Luis Montejano Peimbert is regarded as one of the most influential mathematicians in Latin America. Montejano is a leading researcher at the Institute of Mathematics at the National Autonomous University of Mexico (UNAM), where he was a director from 1994 to 1998. Montejano also served as a president of the Mexican Mathematical Society. His research interests are in geometric and algebraic topology, combinatorics, geometry and convexity. Montejano, who enjoys painting and sculpting, is the author of books including *Bodies of Constant Width* published by Birkhäuser and *La Cara Oculta de las Esferas* (The Hidden Face of Spheres). He describes mathematics as a “beautiful and terrible passion” in the latter work. Montejano earned his Ph.D. in Mathematics in 1980 from the University of Utah. Since that time he has written 100 papers published in *Memoirs of the American Mathematical Society*, *Advances in Mathematics*, *Journal of the London Mathematical Society*, *International Mathematics Research Notices*, and other top mathematical journals. Lately, Montejano and his coauthors proved an old Banach conjecture dating back almost 90 years.

Date: Friday September 25, 2020

Time: 2:00 –3:00 PM

Zoom link: <https://utrgv.zoom.us/j/9082139008>

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