

UNIVERSITÀ DI PARMA DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

http://smfi.unipr.it

Seminario

Prof. Renato Bettiol, Lehman college Cuny

I seminari si svolgeranno on-line su piattaforma Zoom

Part I: Introduction to Convex Algebraic Geometry

martedì 28 giugno ore 15

Convex Algebraic Geometry is an emerging field of research that originates from a coalescence of ideas in Real Algebraic Geometry, Convex Analysis, and Opti-mization. I will introduce its main objects of study, such as spectrahedra and spectrahedral shadows, and survey key results, from the resolution of Hilbert's 17th problem (which is the starting point for many of the later developments), to semidefinite programming and recent breakthroughs by Scheiderer on the Helton--Nie conjecture.

Part II: Applications of Convex Algebraic Geometry to

Geometric Analysis

mercoledì 29 giugno ore 16:30

Following the overview of ideas from Convex Algebraic Geometry in Part I, I will discuss how they can be applied to solve certain problems in Geometric Analysis and Riemannian geometry that rely on pointwise estimates on curvature endo-morphisms. Namely, new bounds on topological invariants of manifolds with pinched sectional curvature will be given, as well as other quantitative results on the interplay of curvature and topology. This is based on joint works with M. Kummer and R. Mendes, and also with M. Goodman.

Organizzatore : prof. Leonardo Biliotti