Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

12:00 pm, Thursday, February 25, 2016, 243 Altgeld Hall

David Berg (Illinois)

Characterization of Aleksandrov Spaces of Curvature Bounded Above by Means of the Metric Cauchy-Schwarz Inequality; part II

Abstract: Joint work of I.D.Berg and I.G.Nikolaev. We employ the previously introduced notion of the K-quadrilateral cosine,the cosine under parallel transport in model K-space,denoted by cosqK. In K-space, modulus cosqK bounded by 1 is equivalent to the Cauchy-Schwarz inequality for tangent vectors under parallel transport. Our principal result states that a geodesic space(of diameter bounded by half the hemisphere diameter for positive K) is a catK space if and only if cosqK is bounded by 1. If, in addition, 1 is actually achieved for two directed non-collinear segments, the geodesic span of the two segments is isometric to a section of K-plane. The diameter restriction is significant. This talk will be devoted to illustrating and explaining these results.If there is time, I will give the ideas of the proofs, veiling the difficult computations that arise,especially in the case of nonzero K, in a decent obscurity.

Video