

GEOMETRIC EXTREMUM PROBLEMS IN SPACE OF CONSTANT CURVATURE

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Abstract: It was proved by Boroczky [1] and Peyerimhoff [2] that among simplices inscribed in a ball in spherical and hyperbolic space, respectively, the regular simplices have maximal volume. In this lecture we show that among simplices circumscribed about a ball in hyperbolic space, the regular simplices have minimal volume. We also investigate analogous questions for d -dimensional spherical and hyperbolic polytopes with $d + 2$ vertices.

- [1] K. Böröczky, *On an extremum property of the regular simplex in S^d* , Colloq. Math. Soc. János Bolyai **48**, (1987), 117-121.
- [2] N. Peyerimhoff, *Simplices of maximal volume or minimal total edge length in hyperbolic space*, J. Lond. Math. Soc. **66** (2002), 753-768.