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Touching Homothetic Bodies and Antipodality

An antipodal set in Euclidean n -space is a set of points with the property that through any two of them there is a pair of parallel hyperplanes supporting the set. In this talk, I will present two research topics that are connected by the idea of antipodality.

The first part of the talk will focus on the extension of the above concept to hyperbolic n -space. This is joint work with Károly Bezdek and Deborah Oliveros.

In the second part, the maximum number of touching positive homothetic copies of a convex body in Euclidean n -space will be discussed. According to a conjecture of Károly Bezdek and János Pach, this number should be 2^n ; which bound, if it holds, is sharp as it is attained by cubes. The previously known bound was 3^n which I improved to $2^{(n+1)}$.