

Constraints on the size of the Tits boundary of a CAT(0) group

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Abstract. It is conjecture that if G acts geometrically on a CAT(0) space X , then either X is rank 1, or X is (morally) a product or a Euclidean building. We approach this question from the point of view of the Tits boundary of X . In the first case the Tits boundary has infinite diameter. In the latter two, the Tits diameter is π . Ballmann conjectured that these are the only possibilities. He showed that if the Tits diameter is more than 2π it is infinite.

We will improve this bound to $3\pi/2$. It can be improved further when the Tits dimension is small, for dimension 1 it is $4\pi/3$.