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Finiteness of Homological Dehn Functions

We partially address a question from S. Bader, R. Kropholler, and V. Vankov regarding the finiteness of homological n -isoperimetric functions over a ring R for groups, as defined in their work. Let R denote the field \mathbb{Q} , \mathbb{R} , or \mathbb{C} with the absolute value norm. We prove that for any group G that admits an $(n + 1)$ -dimensional cocompact model for \underline{EG} , the homological n -isoperimetric function of G over R is either linear or takes infinite values, which follows as a more general result which we will discuss in this talk. In particular, by results of Gersten and Mineyev, in this class of groups, the homological 1-isoperimetric function over R only captures hyperbolicity. This is joint work with Eduardo Martínez-Pedroza.