



Homological and homotopical Dehn functions are different

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The homological and homotopical Dehn functions are different ways of measuring the difficulty of filling a closed curve inside a group or a space. The homological Dehn function measures fillings of cycles by chains, while the homotopical Dehn function measures fillings of curves by disks. Since the two definitions involve different sorts of boundaries and fillings, there is no a priori relationship between the two functions, but prior to this work there were no known examples of finitely-presented groups for which the two functions differ. This paper gives the first such examples, constructed by amalgamating a free-by-cyclic group with several Bestvina-Brady groups.

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