

1089-28-85

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Geometrically extremal measures.

A major direction within the field of metric Diophantine approximation on manifolds has been to study the class of extremal measures. In the case of Euclidean spaces, these are finite Borel measures which do not charge the set of very well approximable points (VWA). In the early '00s Dmitry Kleinbock, Elon Lindenstrauss and Barak Weiss introduced a geometric condition on a measure they named friendliness and showed that it implied extremality. Friendly measures are those which are Federer and nonplanar and which satisfy a certain decay condition. It turns out that many interesting measures do not satisfy Kleinbock, Lindenstrauss and Weiss's condition but are nevertheless extremal. We study a new geometric condition which implies extremality, but is more flexible than friendliness. We present some of our results about this class. This work is part of an ongoing joint collaboration with Lior Fishman (North Texas), David Simmons (Ohio State) and Mariusz Urbański (North Texas). (Received February 02, 2013)