Local mean dimension theory for sofic group actions

YONATAN GUTMAN*

Institute of Mathematics Polish Academy of Sciences ul. Śniadeckich 8, 00-656 Warszawa, Poland. gutman@impan.pl

Using a local perspective, we give sufficient conditions of when every non-trivial factor of a continuous group action of a sofic group has positive mean dimension (by introducing mean dimension pairs). We also prove that the family of shift spaces (on an interval alphabet) with completely positive mean dimension is a complete coanalytic set. Our results are new even when the acting group is the group of integers.

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