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Rebin A Muhammad* (rm775311@ohio.edu), 24 home street apt 104, athens, OH 45701.

Infinite-Dimensional Algebras Without Simple Bases. Preliminary report.

An amenable basis B is called simple if it is not properly congenial to any other amenable basis. The fundamental question whether all algebras have simple bases has been raised by Al-Essa, López-Permouth and Muthana in 2017. In this work, using a construction inspired by the work of Oates-Williams (1984), we introduce a family of algebras granting us examples of algebras without simple bases and of one-sided simple bases. The same construction also provides examples which shows that the notion of amenability is not left-right symmetric. Among other results, we also prove that there is no infinite-dimensional algebra such that every basis is amenable. This is a joint work with Pınar Aydoğdu and Sergio R. López-Permouth. (Received September 25, 2018)