1172-42-29   **Theresa C Anderson*** (`tcanderson@purdue.edu`) and **Bingyang Hu**. *Adjacent Dyadic Systems.*

A very useful tool in analysis and applications, called by many names, is the "1/3" trick, which says that any ball in Euclidean space is contained in a dyadic cube of roughly the same size, where the dyadic cube comes from one of a finite number of dyadic grids. For R^d, Conde showed that the optimal number of grids to perform this trick is $d + 1$.

. In recent joint work, we completely classify all grids that allow this property, termed "adjacent dyadic systems", and discuss an interesting connection to number theory that arises.

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