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On Distance-Regular Graphs with Smallest Eigenvalue $-n$

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Cameron, Goethals, Seidel and Shult (1976) showed that if a regular graph has smallest eigenvalue -2 , then it is either a line-graph, a Cocktail Party graph or has at most 28 vertices.

The distance-regular line graphs were classified by Mohar and Shawe-Taylor (1985). It turns out that either they are polygons or their diameter is bounded by 6.

Neumaier showed that for fixed positive integer $m \geq 2$ there are only a finite number of non-geometric strongly regular graphs with smallest eigenvalue $-m$.

In this talk I would like to discuss recent results on distance-regular graphs with a fixed smallest eigenvalue.