The Lemmens-Seidel conjecture and forbidden subgraphs.

Summary: In this paper we show that the conjecture of P. W. H. Lemmens and J. J. Seidel [J. Algebra 24, 494–512 (1973; Zbl 0255.50005)] for systems of equiangular lines with common angle $\arccos(1/5)$ is true. Our main tool is forbidden subgraphs for smallest Seidel eigenvalue $-5$.

MSC:

05C50  Graphs and linear algebra (matrices, eigenvalues, etc.)
05C75  Structural characterization of families of graphs
51M20  Polyhedra and polytopes; regular figures, division of spaces
52C10  Erdős problems and related topics of discrete geometry

Keywords:

Seidel matrices; forbidden subgraphs; equiangular lines; pillar method

Full Text: DOI

References:

[7] Cameron, P. J., Strongly regular graphs, (Topics in Algebraic Graph Theory, vol. 102 (2004)), 203-221 - Zbl 1067.05030

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