

Makhnev, A. A.**Pseudodual grids and extensions of generalized quadrangles.** (Russian, English)[Zbl 1014.05014](#)

Sib. Mat. Zh. 42, No. 5, 1117-1124 (2001); translation in Sib. Math. J. 42, No. 5, 936-941 (2001).

Let $GQ(s, t)$ be the class of all generalized quadrangles of order (s, t) (i.e. a geometry consisting of points and lines such that each line comprises $s + 1$ points, each point lies on $t + 1$ lines, and for every point a not lying on a line L there exists a unique line passing through a and intersecting L). The subgraph $[a] \cap [b]$ is called a μ -subgraph if the vertices a and b are at distance 2. Let Γ be an amply regular, locally $GQ(s, t)$ graph, $t > 1$. If the μ -subgraphs of Γ are pseudodual grids then it is proved that either $s = t = 2$ and Γ is a Taylor graph (a 2-antipodal cover of a clique) or Γ is the only strongly regular, locally $GQ(2, 4)$ graph with parameters $(64, 27, 10, 12)$ (i.e. contains 64 vertices, is regular of valency 27, each of its edges lies in 10 triangles, and $[a] \cap [b]$ contains 12 vertices for every two vertices a and b that are at distance 2 in it).

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MSC:[05B25](#) Combinatorial aspects of finite geometries[51E12](#) Generalized quadrangles and generalized polygons in finite geometry[05E30](#) Association schemes, strongly regular graphs**Keywords:**amply regular graph; locally $GQ(s, t)$ graph; Taylor graph; strongly regular graph; generalized quadrangle; pseudodual grid**Full Text:** [EuDML](#) [EMIS](#)