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Vertex transitive graphs obtained by generalizing a left loop construction of the Hoffman–Singleton graph

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Abstract: We construct a family of vertex transitive graphs on a left loop structure of order $2q^2$ where q is a power of a prime such that $q \equiv 1 \bmod 4$. The graphs are of diameter 2. The smallest of these graphs is isomorphic to the Hoffman–Singleton graph.

Keywords: left loop; quasi-associative; Cayley graph; Hoffman–Singleton graph; vertex transitive

AMS Subject Classification: 05C25, 05C60, 05C62, 05E18

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