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TS(v, λ) with cyclic 2-intersecting Gray codes: v ≡ 0 or 4 (mod 12). (English) [Zbl 1439.05036]


Summary: A TS(v, λ) is a pair (V, B) where V contains v points and B contains 3-element subsets of V so that each pair in V appears in exactly λ blocks. A 2-block intersection graph (2-BIG) of a TS(v, λ) is a graph where each vertex is represented by a block from the TS(v, λ) and each pair of blocks B_i, B_j ∈ B are joined by an edge if |B_i ∩ B_j| = 2. We show that there exists a TS(v, λ) for v ≡ 0 or 4 (mod 12) whose 2-BIG is Hamiltonian for all admissible (v, λ). This is equivalent to the existence of a TS(v, λ) with a cyclic 2-intersecting Gray code.

MSC:
05B05 Combinatorial aspects of block designs
05B07 Triple systems
05C38 Paths and cycles
94B99 Theory of error-correcting codes and error-detecting codes
05C45 Eulerian and Hamiltonian graphs

Keywords:
triple system; block intersection graphs; Gray codes; Hamilton cycle

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References:

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