

Galati, John C.; LeBel, Alain C.

Relative difference sets in semidirect products with an amalgamated subgroup. (English)

Zbl 1067.05013

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In recent years there has been growing interest in the construction of non-abelian examples of semiregular relative difference sets. The authors give a new construction method by using what they call semidirect product with amalgamated subgroups, that is, a group G with subgroups G_1 and G_2 such that $G = G_1G_2$ and both $N = G_1 \cap G_2$ and G_1 are normal in G . Given relative difference sets with parameters $(m_l, n, m_l, \frac{m_l}{n})$ in two groups G_l ($l = 1, 2$), relative to normal subgroups N_l of G_l , the authors give a sufficient condition (the existence of a compatible coupling) for the existence of a relative difference set with parameters $(m_1^i m_2^j, n, m_1^i m_2^j, \frac{m_1^i m_2^j}{n})$ in some semidirect product with amalgamated subgroup $N \cong N_1 \cong N_2$ for all positive integers i and j . They also discuss several examples for this construction.

Reviewer: Dieter Jungnickel (Augsburg)

MSC:

05B10 Combinatorial aspects of difference sets (number-theoretic, group-theoretic, etc.)

Cited in **1** Review
Cited in **2** Documents

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