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Title: On a class of restricted unitary Cayley graphs

Abstract: We define “quadratic unitary Cayley” graphs G_n , whose vertex set is the ring of integers modulo n , and where residues $a, b \pmod{n}$ are adjacent if and only if their difference is a quadratic residue. We consider the conditions under which these graphs decompose as a tensor product. As well, despite the fact that these graphs often fail to be tensor products, we may use tensor-based arguments to characterize the diameters of these graphs in terms of their prime-power factorization, as well as characterize the conditions on n for G_n to be a perfect graph.