Similarity and Coincidence Isometries for Modules

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Abstract. The groups of (linear) similarity and coincidence isometries of certain modules \( \Gamma \) in \( d \)-dimensional Euclidean space, which naturally occur in quasicrystallography, are considered. It is shown that the structure of the factor group of similarity modulo coincidence isometries is the direct sum of cyclic groups of prime power orders that divide \( d \). In particular, if the dimension \( d \) is a prime number \( p \), the factor group is an elementary abelian \( p \)-group. This generalizes previous results obtained for lattices to situations relevant in quasicrystallography.