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Finite motions from periodic frameworks with additional symmetry

Many crystal-like materials exhibit periodic structure with additional symmetry within their periodic cells. The flexibility of these materials may determine their physical properties, motivating the development of new counting rules for predicting the flexibility of crystallographic frameworks. We study such a symmetric periodic framework through its orbit graph, a finite digraph whose edges are labeled by elements of the symmetry group $\mathbb{Z}^3 \rtimes S$, where S is a crystallographic point group.