1098-52-85 **Gregory McColm*** (mccolm@usf.edu), Department of Mathematics, University of South Florida, 4202 E. Fowler Ave., CMC342, Tampa, FL 33620. *Generating Crystal Nets in Euclidean Space.*

A *crystal net* is an infinite graph whose vertices form a uniformly discrete subset of a Euclidean space, with an upper bound on edgelength, and whose symmetry group contains translations by vectors spanning that Euclidean space. Such a net admits finitely many orbits of vertices and edges. These nets are used as models of the molecular structure of valent crystals, and the computer generation and analysis of these nets is a growing field in theoretical materials science. For each integer $n > 0$, there is a fixed set of affine transformations (two for $n = 2$ or $n = 3$) such that the following is true. Every crystal net in n-dimensional Euclidean space is isomorphic to a crystal net of at least comparable symmetry whose vertices are at integer points (modulo one of these affine transformations). This result enables the representation of such isomorphism classes as boolean combinations of parametrized ensembles of vector spaces. (Received January 13, 2014)