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Kiyoshi Igusa, Gordana G. Todorov* (g.todorov@neu.edu) and **Jerzy Weyman**. *Picture groups for Dynkin quivers and cohomology in type A_n* . Preliminary report.

For every quiver of finite representation type we define a finitely presented group called a picture group. This group is very closely related to the cluster theory of the quiver. For example, positive expressions for the Coxeter element in the group are in bijection with maximal green sequences. The picture group is derived from the semi-invariant picture for the quiver. We use this picture to construct a finite CW complex which is a $K(\pi,1)$ for this group, i.e. has this group as its fundamental group. The cells are in bijection with cluster tilting objects. For example, in type A_n there are a Catalan number of cells. The main result of this paper is the computation of the cohomology ring of all picture groups of type A_n with any orientation and any coefficient ring. (Received August 30, 2016)