1117-06-188 **Jason R Elsinger*** (jelsinger@shc.edu), 6700 Wall Street, Mobile, AL 36695. *Orbifolds of lattice vertex algebras under an isometry of order two: irreducible modules, quantum dimensions, and fusion rules.*

Every isometry σ of a positive-definite even lattice Q can be lifted to an automorphism of the lattice vertex algebra V_Q. An important problem in vertex algebra theory and conformal field theory is to classify the representations of the σ-invariant subalgebra V_Q^σ of V_Q, known as an orbifold. In the case when σ is an isometry of Q of order two, we have classified the irreducible modules of the orbifold vertex algebra V_Q^σ and identified them as submodules of twisted or untwisted V_Q-modules. Here we also investigate their quantum dimensions and fusion rules. The example where Q is a direct sum of two copies of the root lattice A_2 and σ is the permutation automorphism are presented in detail. (Received January 13, 2016)