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Andrew Elliott* (elflord@rice.edu), Math Department – MS 136, Rice University, 6100 S. Main St., Houston, TX 77005. *Graph-based methods establishing nontriviality of state cycle Khovanov homology classes.*

We determine when certain state cycles represent nontrivial Khovanov homology classes by analyzing features of the state graph. Using this method, we are able to produce hyperbolic knots with arbitrarily many diagonals containing nontrivial state cycle homology classes. This gives lower bounds on the Khovanov width of knots whose complexity precludes computation of the full homology. (Received July 13, 2009)