1167-17-115 **Lilit Martirosyan*** (martirosyanl@uncw.edu), NC , and **Hans Wenzl**. *Braid rigidity for path algebras.*

Path algebras are a convenient way of describing decompositions of tensor powers of an object in a tensor category. If the category is braided, one obtains representations of the braid groups B_n for all $n \in \mathbb{N}$. We say that such representations are rigid if they are determined by the path algebra and the representations of B_2. We show that besides the known classical cases also the braid representations for the path algebra for the 7- dimensional representation of G_2 satisfies the rigidity condition, provided B_3 generates $\mathrm{End}(\mathrm{V}^{\otimes 3})$. We obtain a complete classification of ribbon tensor categories with the fusion rules of $\mathfrak{g}(G_2)$ if this condition is satisfied. (Received February 28, 2021)