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Laura E. Ballard*, lballard@syr.edu. *Properties of the Toric Ring of a Chordal Bipartite Family of Graphs.*

This project concerns the classification and study of a group of Koszul algebras coming from the toric ideals of a chordal bipartite infinite family of graphs (alternately, these rings may be interpreted as coming from determinants of subsets of certain matrices). I have determined a system of parameters for this family of rings, have developed a proof for the regularity of the rings and explicitly determined the Hilbert series for the Artinian reduction of these modulo a linear system of parameters, yielding, in particular, the multiplicity of the original rings. I will also report on partial progress on the nonadditive derived homological algebra of this family of algebras. (Received August 20, 2019)