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ORBIT DECOMPOSITION OF SKEW GROUP ALGEBRAS

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Abstract. We describe the basic algebra Morita equivalent to the skew group algebra ΛG, where Λ is the path algebra of a finite, connected, acyclic quiver and G is a finite cyclic group. We give a structure theorem for the above case, based on combinatorial techniques. We prove that in this case ΛG is isomorphic to a direct product of certain matrix algebras, which are described in detail.

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REFERENCES

[1] Assem, I., Simson, D. and Skowronski, A., *Elements of the Representation Theory of Associative Algebras*, Cambridge Univ. Press, New York, 2006.

[2] Auslander, M., Reiten, I. and Smalø, S.O., *Representation Theory of Artin Algebras*, Cambridge Univ. Press, New York, 1989.

[3] Benson, D.J., *Representations and cohomology*, Vol. **1**, Cambridge Univ. Press, New York, 1995.

[4] Reiten, I. and Riedtmann, C., *Skew group algebras in the representation theory of artin algebras*, J. Algebra, **92** (1985), 224–282.

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