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Robert Lee Wilson* (rwilson@math.rutgers.edu), Department of Mathematics, Rutgers University, 110 Frelinghuysen Road, Piscataway, NJ 08854-8019, **Vladimir Retakh** (vretakh@math.rutgers.edu), Department of Mathematics, Rutgers University, 110 Frelinghuysen Road, Piscataway, NJ 08854-8019, and **Shirlei Serconek** (serconek@mat.ufg.br), Institute of Mathematics and Statistics, CX-Postal 131, Goiania, Goias 74000, Brazil. *Hilbert series of algebras associated to directed graphs.*

We describe certain graded algebras associated to directed graphs and give a homological interpretation of the coefficients of the Hilbert series for these algebras and their duals. This allows us to obtain necessary conditions for Koszulity of such algebras in terms of homological properties of the graphs. We use our results to construct algebras of given growth such as noncommutative complete intersections and Calabi-Yau algebras. (Received September 14, 2010)