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Nicholas R Baeth* (baeth@ucmo.edu), WCM 213, University of Central Missouri, Warrensburg, MO 64093. *Irreducible Divisor Graphs*.

Introduced to provide insight into factorization properties within a commutative ring, irreducible divisor graphs have now been generalized to study factorization properties in commutative monoids. Given an element x in a commutative monoid M , the irreducible divisor graph $G(x)$ has a vertex set consisting of all irreducible elements that divide x and edge set consisting of pairs a, b of irreducible elements such that the product ab divides x . Much of the work in this area has focused on the property of gleaning information about the factorization properties of an element x in the monoid given the irreducible divisor graph $G(x)$. Recently, various irreducible divisor graphs have been constructed with certain graph-theoretic properties in mind. In this talk we will provide a brief introduction to irreducible divisor graphs, give a summary of what is known, and provide a list of open problems in this area, many of which are suitable for undergraduate research. (Received September 20, 2010)