1014-13-358 **Jack L Maney*** (jmaney@usd.edu), Department of Mathematical Sciences, The University of South Dakota, 414 E. Clark St., Vermillion, SD 57069, and **Jim B. Coykendall**. *Irreducible Divisor Graphs.*

Let R be an atomic integral domain (that is, a domain where every nonzero nonunit can be factored into irreducibles). Given a nonzero nonunit $x \in R$, we define the irreducible divisor graph of x, denoted $G(x)$ in the following manner. The vertices of $G(x)$ are the nonassociate irreducible divisors of x, and for all distinct pairs of vertices y and z, yz is an edge of $G(x)$ if and only if $yz|x$. We also put $n-1$ loops on the vertex y if $y^n|x$ and y^{n+1} does not divide x.

We use the concept of irreducible divisor graphs to characterize a few types of domains (including unique factorization domains). (Received September 12, 2005)