Meeting: 1003, Atlanta, Georgia, AMS CP 1, AMS Contributed Paper Session

1003-16-1277 **Jason P Huffman*** (jason.huffman@gcsu.edu), Department of Mathematics & Computer Science, CBX 017, GC&SU, Milledgeville, GA 31061. *Elements of Interest in a Jacobson Radical Ring.* Preliminary report.

Let R be an associative ring, not necessarily having unity, and let $\mathbf{J}(R)$ denote the Jacobson radical of R. A *zero divisor* is any $x \in R$ such that $xy = 0$ or $yx = 0$ for some $y \in R$. For a Jacobson radical ring, i.e. a ring in which $\mathbf{J}(R) = R$, a broad spectrum of possibilities exists with regards to zero divisors. Jacobson radical rings exist which are entire and thus have no nonzero divisors of zero, and yet every element in a nil ring (which is radical) is a zero divisor. We consider the implications that certain algebraic properties have on zero divisors (including nilpotents) in Jacobson radical rings. Furthermore, if $\mathbf{J}(R) = R$ then every $x \in R$ is *quasi-regular*, i.e. there exists for each x a unique element y such that $x + y - xy = 0$. Properties of R are given when the condition $y = x$ is imposed in the definition above. Lastly, we explore related concepts such as topological nilpotents in Banach algebras. (Received October 04, 2004)