1120-13-40   **Stefan Bock**, Department of Mathematical Sciences, Martin Hall O-10, Clemson University, Clemson, SC 29634, and **Jim Coykendall*** (`jcoyken@clemson.edu`), Department of Mathematical Sciences, Martin Hall O-10, Clemson University, Clemson, SC 29634.
Cohen-Kaplansky Domains.

An integral domain is called a *Cohen-Kaplansky domain* (CK-domain) if it is atomic (that is, every nonzero, nonunit element can be factored into a finite product of irreducibles) and has only finitely many irreducible elements up to associates. CK-domains have strong structural requirements. For example, they must be of dimension no more than 1 and be semilocal. Additionally, the integral closure of a CK-domain is a PID with only finitely many primes.

But the "counting" part of CK-domains can be maddeningly difficult. In this talk we will discuss a two major questions. The first is "given a natural number n can one build a CK-domain with precisely n nonprime irreducibles (up to associates)?" The second question is "if we can build such a domain for a given n what is the most efficient way to do so?"

There will be numerous examples along the way to convey the difficulty of this problem. (Received January 29, 2016)