1161-13-243   **J. R. Juett** and **Lois W. Ndungu*** (`lwn8@txstate.edu`). *Krull rings, regular π-rings, and generalizations.* Preliminary report.

Let $\star$ be a star operation on a commutative ring R. (We will review star operations and other relevant definitions.) We define R to be a *regular $\star$-π-ring* if every regular proper principal ideal is a $\star$-product of prime $\star$-ideals. We find this notion to hold interest because it simultaneously encapsulates two important generalizations of factoriality. That is, if R is an integral domain and $\star = d$ (resp., $\star = t$), then R is a regular $\star$-π-ring if and only if it is a π-domain (resp., Krull domain). Many characterizations of π-domains and Krull domains can be found in the literature, showcasing a rich interplay between the notions of (t-)products of prime (t-)ideals, (t-)invertibility, and various ideal arithmetic properties. In this talk we give several characterizations of regular $\star$-π-rings (in the case where $\star$ has finite character), simultaneously generalizing much of the known theory of π-domains and Krull domains under a unified framework, as well as obtaining a few results that are new even in these special cases. (Received August 17, 2020)