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Alfred Geroldinger and **David J. Grynkiewicz*** (diambri@hotmail.com), Department of Mathematical Sciences, University of Memphis, Memphis, TN 38152, and **Pingzhi Yuan**. *On Sets of Lengths in Krull Monoids*.

Let H be Krull Monoid with finite class group G such that every class contains a prime divisor. Given a product of k atoms $u_1 \cdot \dots \cdot u_k$, we can ask what integers $t \geq 1$ are potential lengths of alternative factorizations: $u_1 \cdot \dots \cdot u_k = v_1 \cdot \dots \cdot v_t$ with the v_i also atoms. Let $\mathcal{V}_k(H)$ denote the union of all such t , ranging over all possible products of k atoms $u_1 \cdot \dots \cdot u_k$. In other words, $\mathcal{V}_k(H)$ is the set of potential alternative factorization lengths available to any product of k atoms in H . It is known that $\mathcal{V}_k(H)$ is a finite interval, completely determined by its maximal value $\rho_k(H)$. We focus on some new results regarding the constant $\rho_k(H)$ achieved via methods from Combinatorial Number Theory. (Received September 03, 2014)