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**David J. Gryniewicz\***, Department of Mathematical Sciences, University of Memphis,  
Memphis, TN 38152. *Finite Elasticities in Krull Domains with Finitely Generated Class Group.*

Our main motivating goal is the study of factorization in Krull Domains  $H$  with finitely generated class group  $G$ . While factorization into irreducibles, called atoms, generally fails to be unique, there are various measures of how badly this can fail. One of the most important is the elasticity

$$\rho(H) = \lim_{k \rightarrow \infty} \rho_k(H)/k,$$

where  $\rho_k(H)$  is the maximal number of atoms in any re-factorization of a product of  $k$  atoms. Having finite elasticity is a key indicator that factorization, while not unique, is not completely wild. This talk will describe, in brief, parts of our recent characterization of finite elasticity for any Krull Domain with finitely generated class group  $G$  by means of Convex Geometry. Indeed, most of our results are valid for the more general class of Transfer Krull Monoids (over a subset  $G_0$  of a finitely generated abelian group  $G$ ). We will focus on some of the arithmetic consequences of the characterization, including the implied finiteness of the set of distances  $\Delta(H)$  and catenary degree  $c(H)$ , as well as the Structure Theorem for Unions holding, and also broadly describe some of the key aspects of Convex Geometry involved in the proofs. (Received September 07, 2020)