1086-13-1647 **Paul Baginski*** (pbaginsk@smith.edu), Department of Mathematics and Statistics, Smith College, 44 College Lane, Northampton, MA 01063. *Full Elasticity in Atomic Monoids.* Preliminary report.

In an atomic integral domain or atomic monoid, elements may have several different factorizations into irreducibles. The elasticity of an element gives one measure of the "non-uniqueness" of these factorizations. Specifically, if x is a nonunit of an atomic monoid M, the length set of x is the set

$$\mathcal{L}(x) := \{n \in \mathbb{N} \mid \exists a_1, \ldots, a_n \in M \text{ irreducible such that } x = a_1 \cdots a_n\}.$$

The elasticity of x is the ratio $\rho(x) := \sup \mathcal{L}(x) / \min \mathcal{L}(x)$. The elasticity of the monoid M is defined as the supremum of elasticities of elements, namely $\rho(M) := \sup_{x \in M} \rho(x)$. The elasticity of the monoid gives a worst-case scenario of the degree of non-uniqueness across the monoid; we are interested in determining whether all intermediate degrees of non-uniqueness are also achieved. If so, the monoid is said to be fully elastic. We will relate full elasticity to several known properties of monoids and consider several broad classes of test cases, including Krull monoids, finitely generated monoids, and congruence monoids. (Received September 23, 2012)