

1116-13-2771 **Paul Baginski*** (pbaginski@fairfield.edu), Department of Mathematics, Fairfield University,
1073 North Benson Rd, Fairfield, CT 06824. *Elasticity in Arithmetic Congruence Monoids.*

For integers $0 < a \leq b$, the arithmetic progression $M_{a,b} := a + b\mathbb{N}$ is closed under multiplication if and only if $a^2 \equiv a \pmod{b}$. Any such multiplicatively closed arithmetic progression is called an arithmetic congruence monoid (ACM). Though these $M_{a,b}$ are multiplicative submonoids of \mathbb{N} , their factorization properties differ greatly from the unique factorization one enjoys in \mathbb{N} . This talk will explore the known factorization properties of these monoids, with a particular emphasis on recent results about the elasticity. When $a > 1$, these monoids are not Krull and thus do not have a class group which fully captures the factorization behavior. Nonetheless, a certain finite abelian group associated to it does convey some of the information one would expect from a class group. The analysis of elasticity properties requires studying the additive combinatorics of this group, hinging on the existence of certain combinatorial configurations. (Received September 22, 2015)