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Nathan Kaplan* (nathan.kaplan@yale.edu), Yale University, Department of Mathematics, 10 Hillhouse Avenue, New Haven, CT 06511, and **Stefan Colton**. *The Realization Problem for Delta Sets of Numerical Semigroups*.

The delta set of a numerical semigroup is a factorization invariant that measures the complexity of the sets of lengths of its elements. We study the following two problems: Which finite sets occur as delta sets? If we restrict to semigroups with minimal generating set of size e , which finite sets occur as delta sets?

It is known that the minimum element of a delta set must be equal to the gcd of its elements. We show that any two-element set $\{d, td\}$ occurs as a delta set. We also show that if the two-element set $\{d, td\}$ occurs as the delta set of a numerical semigroup with three minimal generators, then $t = 2$. (Received September 15, 2014)