

On the elasticity of a numerical semigroup

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Abstract. Let S be a numerical semigroup, and $\text{msg}(S)$ its minimal system of generators. Then $m(S) = \min(\text{msg}(S))$, $M(S) = \max(\text{msg}(S))$, $e(S)$, which is the cardinality of $\text{msg}(S)$, and $\mathcal{S}(S) = \frac{M(S)}{m(S)}$, are called the multiplicity, comultiplicity, embedding dimension, and elasticity of S , respectively.

Let m and M be positive integers, and let q be a rational number greater than 1. In this paper, we will study the following sets:

- $\{S \mid S \text{ is a numerical semigroup, } m(S) = m \text{ and } M(S) = M\}$,
- $\{S \mid S \text{ is a numerical semigroup, } m(S) = m \text{ and } \mathcal{S}(S) \leq q\}$, and
- $\{S \mid S \text{ is a numerical semigroup, } e(S) = 3 \text{ and } \mathcal{S}(S) = q\}$.

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Mathematics Subject Classification: 20M14, 11D07, 20M13.

Key words and phrases: numerical semigroup, packed numerical semigroup, Frobenius number, genus, multiplicity, comultiplicity, algorithm, Frobenius pseudo-variety.