
SEMINARIO

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A Wilf-type inequality for numerical semigroups and local rings

Abstract: Numerical semigroups are additive submonoids of $(\mathbb{N}, +)$, with finite complement in $\mathbb{N}$. Despite their simple structure, there are many interesting problems regarding numerical semigroups, often arising from their connection with other research subjects in mathematics.

In this talk I will present a longstanding conjecture known as Wilf's conjecture, that is an inequality involving embedding dimension and multiplicity of a numerical semigroup. This conjecture has been proved for some classes of numerical semigroups, but no general strategy has been found to solve it. Successively, I will show a similar, but weaker, inequality, recently proved by A. Moscariello and myself.

This inequality, like also Wilf's conjecture, can be re-interpreted for one-dimensional local rings and also in higher dimension, provided that the conductor of the ring in its integral closure in the total ring of fractions is $\mathfrak{m}$ -primary.

The new results presented in this talk are contained in two joint works with A. Moscariello.

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