

Algebra, Combinatorics and Number Theory Seminar

Date. Wednesday, June 11, 2025 - 4pm Porto - FC1 007 (and online)¹

Speaker. Manuel Delgado - CMUP

Title. On the verification of properties of numerical semigroups up to high genus

Abstract. A numerical semigroup S is a cofinite submonoid of the aditive monoid $(\mathbb{N}, +)$. The (finite) complement of S in \mathbb{N} is the genus of S.

I plan to recall a well-known process of exploring the classical numerical semigroups tree as a means to count numerical semigroups by genus. The process is easily adapted to verify properties: one verifies the property at each explored node.

Through the insertion of some existing theory, one can count up to a higher genus without increasing the computational cost. Furthermore, the method gets better as the genus increases.

In the case of verification of properties, one can incorporate additional existing theoretical results, some of which lead to relatively efficient computations.

With S. Eliahou and J. Fromentin we obtained a relevant result in this direction: there is no counter-example to Wilf's conjecture among the many numerical semigroups with genus not greater than 100.

In the seminar, I will give an overview of some work done on this topic.

There will be a coffee break after the seminar.

¹https://fc-up-pt.zoom.us/j/85243807260









