

## SATURATED NUMERICAL SEMIGROUPS

M.B. BRANCO

A numerical semigroup is a subset  $S$  of  $\mathbb{N}$  that is closed under addition, contain 0 and has finite complement in  $\mathbb{N}$ .

Given a nonempty subset  $A$  of  $\mathbb{N}$  and  $a \in A$ , we denote by  $d_A(a) = \gcd\{x \in A \mid x \leq a\}$ . We say that a numerical semigroup  $S$  is saturated if for all  $s \in S$ ,  $s + d_S(s) \in S$ .

The main purpose of this talk is to study the class of numerical semigroups that are saturated. We introduce the concept of SAT system of generators for a saturated numerical semigroup, and this will enable us to arrange the set of all saturated numerical semigroups in a binary tree with no leaves. In addition we present efficient algorithms to compute the set of saturated numerical semigroups with a given Frobenius number or a given genus.

This is joint work with: J.C. Rosales (Universidad de Granada - Spain) and Denise Torrão (Universidade de Évora)

DEPARTAMENTO DE MATEMÁTICA, UNIVERSIDADE DE ÉVORA, 7000 ÉVORA, PORTUGAL

*E-mail address:* mbb@uevora.pt