

# On the value semigroup at infinity associated to a curve with only one place at infinity

Carlos-Jesús Moreno-Ávila

Universitat Jaume I – Universidad de Valladolid

## Abstract

Let  $C$  be a curve on  $\mathbb{P}^2$  with only one place at infinity at a point  $p \in \mathbb{P}^2$ , and let  $S_{C,\infty}$  be its semigroup at infinity, i.e. the additive submonoid of  $(\mathbb{N}, +)$  consisting of the orders —with negative sign— of the poles of the regular functions around (but not in)  $p$ . After a theorem by Abhyankar and Moh, we can associate to  $C$  a so-called  $\delta$ -sequence in  $\mathbb{N}_{>0}$  which is a system of generators of  $S_{C,\infty}$ , by no means unique.

Curves with only one place at infinity are relevant, for instance they play an important role in the study of the Jacobian conjecture. However, not so much is known about  $S_{C,\infty}$  from a combinatorial point of view. In this talk we review the previous concepts and results and we see some properties of the  $\delta$ -sequences; in particular, we introduce the notion of minimal  $\delta$ -sequence as that with least length among all the  $\delta$ -sequences generating the same semigroup at infinity.

This talk is based on a joint work with C. Galindo, F. Monserrat and J.-J. Moyano-Fernández.