SEMINARIO
Mario González Sánchez
Universidad de Valladolid

Betti numbers of monomial curves

Abstract: Given an infinite field k and a sequence of relatively prime integers $a_0 = 0 < a_1 < \cdots < a_n = d$, we consider the projective monomial curve $\mathcal{C} \subset \mathbb{P}_k^n$ of degree d parametrically defined by $x_i = u^{a_i} v^{d-a_i}$ for all $i \in \{0, \ldots, n\}$ and its coordinate ring $k[\mathcal{C}]$. The curve $\mathcal{C}_1 \subset \mathbb{A}_k^n$ with parametric equations $x_i = t^{a_i}$ for $i \in \{1, \ldots, n\}$ is an affine chart of $\mathcal{C}$ and we denote by $k[\mathcal{C}_1]$ its coordinate ring.

The Betti numbers of $k[\mathcal{C}]$ and $k[\mathcal{C}_1]$ satisfy the relation $\beta_i(k[\mathcal{C}_1]) \leq \beta_i(k[\mathcal{C}])$ for all i. In this talk, we will discuss when the Betti numbers of the coordinate rings of a projective monomial curve and one of its affine charts are identical.

This talk is based on a joint work with Ignacio García-Marco and Philippe Gimenez.

Seminario del IMUVA, Edificio LUCIA
Jueves 27 de Junio de 2024 (11:00)