CASTELNUOVO-MUMFORD REGULARITY OF PROJECTIVE MONOMIAL CURVES ASSOCIATED TO ARITHMETIC SEQUENCES

I. BERMEJO AND E. GARCÍA-LLORENTE

ABSTRACT. Let k be an algebraically closed field and $m_0 < \cdots < m_n$ an arithmetic sequence. We consider the projective monomial curve $\mathcal{C} \subset \mathbb{P}_k^{n+1}$ parametrically defined by

$$x_0 = t^{m_0} s^{m_n - m_0}, \ldots, x_{n-1} = t^{m_{n-1}} s^{m_n - m_{n-1}}, x_n = t^{m_n}, x_{n+1} = s^{m_n}.$$

In this work, we obtain a formula for the Castelnuovo-Mumford regularity $\operatorname{reg}(\mathcal{C})$ of $\mathcal{C}$ in terms of the arithmetic sequence that allows us to compute $\operatorname{reg}(\mathcal{C})$ in an efficient way.

Facultad de Matemáticas. Universidad de La Laguna. 38200 La Laguna, Tenerife, Spain.

E-mail address: `ibermejo@ull.es`

E-mail address: `evgarcia@ull.es`