

About the semiample cone of the symmetric product of a curve

Michela Artebani (Universidad de Concepción, Chile)

Abstract. Let C be a smooth complex curve of genus $g > 1$ and let $C^{(2)}$ be the second symmetric power of C . In this talk I will be concerned with the following graded algebra associated to $C^{(2)}$:

$$R(\Delta, K) = \bigoplus_{(a,b) \in \mathbb{Z}^2} H^0(C^{(2)}, a\Delta + bK),$$

where K is the canonical class of $C^{(2)}$ and Δ is the diagonal $\{p + p : p \in C\}$.

In case C is the complete intersection of a quadric and a surface of degree $k > 2$ in \mathbb{P}^3 , I will show that $R(\Delta, K)$ is finitely generated if and only if the difference of the two natural g_k^1 's on C is a non-trivial torsion point in the Jacobian of C . The curves with such property form an analytically dense subset of the Hilbert scheme of curves of type (k, k) in $\mathbb{P}^1 \times \mathbb{P}^1$. I will sketch the proof of this fact, showing that the family of curves which realizes the k -torsion, the “grid family”:

$$f_1(x_0, x_1)g_1(y_0, y_1) + f_2(x_0, x_1)g_2(x_0, x_1) = 0,$$

has the expected dimension. This is joint work with Antonio Laface and Gian Pietro Pirola (see <http://arxiv.org/pdf/1502.00298v1.pdf>).