MINIMAL SYSTEMS OF BINOMIAL GENERATORS AND THE
INDISPENSABLE COMPLEX OF A TORIC IDEAL

HARA CHARALAMBOUS

1. Abstract

Let $A = \{a_1, \ldots, a_m\} \subset \mathbb{Z}^n$ be a vector configuration and $I_A \subset K[x_1, \ldots, x_m]$ its corresponding toric ideal. We completely determine the number of different minimal systems of binomial generators of $I_A$. We also prove that generic toric ideals are generated by indispensable binomials. We associate to $A$ a simplicial complex $\Delta_{\text{ind}(A)}$. We show that the vertices of $\Delta_{\text{ind}(A)}$ correspond to the indispensable monomials of the toric ideal $I_A$, while one dimensional facets of $\Delta_{\text{ind}(A)}$ with minimal binomial $A$-degree correspond to the indispensable binomials of $I_A$.

This talk is based on joint work with A. Katsabekis and A. Thoma.

Department of Mathematics, Aristotle University of Thessaloniki, Thessaloniki 54124, GREECE
E-mail address: hara@math.auth.gr