1120-52-172 **Christos Saroglou** and **Ivan Soprunov*** (`i.soprunov@csuohio.edu`), 2121 Euclid Ave, Cleveland, OH 44115, and **Artem Zvavitch**. *Bezout inequality for mixed volumes.*

The classical Bezout inequality in algebraic geometry relates the degrees of hypersurfaces to the degree of their intersection. For generic hypersurfaces with fixed Newton polytopes the degree can be computed as the mixed volume according to the Bernstein–Kushnirenko theorem. Thus the Bezout inequality can be interpreted as an inequality for mixed volumes of lattice polytopes. Indeed, for $2 \le r \le n$ hypersurfaces with Newton polytopes $P_1, \dots, P_r$ in $\mathbb{R}^n$ the Bezout inequality becomes

$$V(P_1, \dots, P_r, \Delta^{n-r}) V_n(\Delta)^{r-1} \le \prod_{i=1}^{r} V(P_i, \Delta^{n-1}), \tag{1}$$

where Δ is the standard n-simplex $\Delta = \mathrm{conv}\{0, e_1, \dots, e_n\}$ and Δ^k indicates that Δ is repeated k times in the expression of the mixed volume. This turns out to be a general inequality which holds for arbitrary convex bodies P_i and arbitrary n-simplex Δ. The main question we will discuss is whether the Bezout inequality characterizes simplices, that is, if Δ is a convex body which satisfies (1) for all convex bodies $P_1, \dots, P_r$ does it imply that Δ is an n-simplex? (Received February 21, 2016)