ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

4. Algebraic Geometry

1991 MS Classification: 14, 32, 55
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One estimate for dimesion of $H^n(\mathbf{C}^n \backslash V, \mathbf{C})$

Let V be a smooth algebraic hypersurface in $\mathbf{C}^n$ given by zeros of polynomial $f \in \mathbf{C}[x_1, \ldots, x_n]$. Suppose that for V there exists a simplicial toric compactification X of $\mathbf{C}^n$ such that the intersection of closure $\overline{V}$ in X is trasnsversal to the divisor $D = X \backslash T$ – a complement to the n-dimesional torus in X. There is an inequality: $\dim H^n(\mathbf{C}^n \backslash V, \mathbf{C}) \leq \#(\Delta_* \cap \mathbf{Z}^n)$ for dimension of higher-dimensional cohomology group of complement $\mathbf{C}^n \backslash V$ in terms of number of integral points in polytope Δ_* constructed from Newton polytope of f.