

Number theory

Linear spaces on hypersurfaces with a prescribed discriminant

Julia Brandes

Chalmers, Sweden

For a given form $F \in \mathbb{Z}[x_1, \dots, x_s]$ we apply the circle method in order to give an asymptotic estimate of the number of m -tuples $\mathbf{x}_1, \dots, \mathbf{x}_m$ on the hypersurface $F(X) = 0$ having $\det(\mathbf{x}_1, \dots, \mathbf{x}_m)^t(\mathbf{x}_1, \dots, \mathbf{x}_m) = b$. As a corollary, we obtain a count of rational linear spaces contained in the hypersurface $F(\mathbf{x}) = 0$ having dimension exactly m , thus addressing a weakness of previous results.