

On combinatorial invariance of the cohomology of Milnor fiber of arrangements and Catalan equation over function field

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We show that for arrangements of lines with points of multiplicity at most three, the cohomology of Milnor fiber is determined only by the combinatorics of arrangement. The proof depends on enumeration of solutions of the Catalan equation over function field in the case when its coefficients are products of linear forms and the equation defines an elliptic curve.

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