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Bounds for the Number of Triangles in Arrangements of Lines and Pseudolines in the Real Projective Plane

Abstract for the Combinatorics Seminar 2016 April 12

I will discuss two papers by Roudneff along with other established bounds on the number of triangles in arrangements of lines and pseduolines. First I will show Roudneff's construction of an infinite family of simple arrangements of pseudolines which satisfies the upper bound on the number of triangles, thus establishing a sharp polynomial upper bound. I will briefly discuss the upper bound on the number of triangles in simple arrangements of lines. I will then prove that any arrangement of lines satisfying the lower bound on the number of triangles must be simple.
