Waldschmidt constants of symmetric sets of points in projective spaces

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Abstract

The Waldschmidt constants are very difficult to determine in general. Waldschmidt constants are known only in a few cases. Understanding its structure and associated geometry is not a straightforward task. The notation for Waldschmidt constants has evolved over the years, whereas Waldschmidt apparently has not used any symbol. In the 1980s Chudnovsky studied the Waldschmidt constant.

The motivation of my doctoral dissertation entitled "Asymptotic invariants of configurations of points determined by complex reflection groups" is an extension of the list of known cases.

In particular, we focus on calculating the Waldschmidt constants for symmetric sets of points in projective space, i.e. the configurations H_3, D_4, B_4 and F_4 [2]. For further information see [1].

References

[1] M. Dumnicki, B. Harbourne, U. Nagel, A. Seceleanu, T. Szemberg, and H. Tutaj-Gasińska. Resurgences for ideals of special point configurations in $\mathbb{P}^N$ coming from hyperplane arrangements. *J. Algebra*, 443:383–394, 2015.

[2] P. Wiśniewska and M. Zięba. Generic projections of the H_4 configuration of points. *Adv. Math.*, Vol. 142, 2022.