

Osserman, Brian; Payne, Sam

Lifting tropical intersections. (English) Zbl 1308.14069
Doc. Math. 18, 121-175 (2013).

Tropicalizations of algebraic varieties are combinatorial objects that offer new approaches for the study of algebraic geometry. The tropicalization of an intersection is contained in the intersection of the tropicalizations, but in general it is not equal. This fact is responsible e.g. for the need to study tropical bases for ideals. In [*T. Bogart et al.*, J. Symb. Comput. 42, No. 1–2, 54–73 (2007; [Zbl 1121.14051](#))], the transverse intersection lemma states that equality holds if the tropicalizations intersect transverse. This paper is devoted to the question of how we can relax this strong requirement while upholding the equality. One result is that an intersection in the expected dimension (but not necessarily transversally) is already enough.

Reviewer: [Hannah Markwig \(Göttingen\)](#)

MSC:

- [14T05](#) Tropical geometry (MSC2010)
- [14C17](#) Intersection theory, characteristic classes, intersection multiplicities in algebraic geometry
- [14M25](#) Toric varieties, Newton polyhedra, Okounkov bodies
- [14A15](#) Schemes and morphisms

Cited in **24** Documents

Keywords:

[tropical geometry](#); [intersection theory](#); [schemes over valuation rings](#)

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