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Monomial ideals whose powers have a linear resolution. (English) Zbl 1091.13013

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A graded module M is said to have a linear resolution if all entries in the matrices representing the differentials in a graded minimal free resolution of M are linear forms. If an ideal I has a linear resolution, then necessarily all generators of I have the same degree t . In that case one says that I has a t -linear resolution. In general, powers of (monomial) ideals with linear resolutions need not to have a linear resolution. In this paper the authors show that if $I \subset k[x_1, \dots, x_n]$ is a monomial ideal with 2-linear resolution, then each power of I has a linear resolution.

Reviewer: [Giuseppe Zappalà \(Catania\)](#)

MSC:

[13D02](#) Syzygies, resolutions, complexes and commutative rings

[13F20](#) Polynomial rings and ideals; rings of integer-valued polynomials

[13P10](#) Gröbner bases; other bases for ideals and modules (e.g., Janet and border bases)

Cited in **3** Reviews
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Keywords:

[monomial ideals](#); [t-linear resolution](#); [powers of ideals](#)

Full Text: [DOI](#) [arXiv](#)