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Thomas M Ales* (tales@masonlive.gmu.edu), 4400 University Drive, MS: 3F2, Exploratory Hall, room 4400, Fairfax, VA 22030. *Tight closure invariants in combinatorial rings of characteristic 0*. Preliminary report.

The $*$ -core of an ideal I is the intersection of all $*$ -reductions of the ideal, a $*$ -reduction being any ideal $J \subseteq I$ such that the tight closure of J contains I . The $*$ -spread of I is defined to be the number of generators of a minimal such reduction. Though difficult to compute in general, certain theorems enable us to compute the tight closure of ideals of certain combinatorial structured rings. We demonstrate that the $*$ -spread of the maximal ideal \mathfrak{m} in a Stanley-Reisner ring over a field of characteristic 0 is invariant with respect to the dimension of the defining simplicial complex of the ring. We also describe the minimal $*$ -reductions of \mathfrak{m} in monomial and binomial rings. It is also possible to describe the polynomials that generate the $*$ -cores of these ideals and we provide examples. (Received September 25, 2017)