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**Francesca Gandini\*** (fragandi@umich.edu). *Resolutions of ideals associated to subspace arrangements.*

Given a collection of  $t$  subspaces in an  $n$ -dimensional  $\mathbb{K}$ -vector space  $W$  we can associate to them  $t$  vanishing ideals in the symmetric algebra  $\mathcal{S}(W^*) = \mathbb{K}[x_1, x_2, \dots, x_n]$ . As a subspace is defined by a set of linear equations, its vanishing ideal is generated by linear forms so it is a *linear ideal*. Conca and Herzog showed that the Castelnuovo-Mumford regularity of the product of  $t$  linear ideals is equal to  $t$ . Derksen and Sidman showed that the Castelnuovo-Mumford regularity of the intersection of  $t$  linear ideals is at most  $t$ . We show that analogous results hold when we replace the symmetric algebra  $\mathcal{S}(W^*)$  with the exterior algebra  $\bigwedge(W^*)$  and work over a field of characteristic 0. To prove these results we rely on the functoriality of free resolutions and construct a functor  $\Omega$  from the category of polynomial functors to itself. The functor  $\Omega$  transforms resolutions of ideals in the symmetric algebra to resolutions of ideals in the exterior algebra. (Received January 27, 2019)