

# FROBENIUS POWERS OF IDEALS

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ABSTRACT. Given an ideal and a positive real parameter, there are many ways to construct a new ideal. For example, when the parameter is an integer, one may simply take the corresponding power of the ideal. Similarly, in prime characteristic, if the parameter is an integer power of the characteristic, then one may take the Frobenius power of the ideal.

Further examples of this include the multiplier ideal construction from birational geometry, and the test ideal construction in prime characteristic. These constructions are known to be useful tools in measuring the singularities of the original ideal, and have recently been the subject of intense study.

In this talk, we discuss a new construction in prime characteristic that "mimics" the usual Frobenius powers of an ideal. We will relate these "generalized Frobenius powers" to test ideals and multiplier ideals, and describe how they measure the singularities of generic polynomials.