Mathematics, Statistics, and Computer Science **@ UIC**

Algebraic Geometry Seminar

Hodge ideals for Q-divisors with quasi-homogeneous or non-degenerate isolated singularities

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Abstract: In this talk, I will present my work on studying a sequence of invariants, called Hodge ideals, which detect singularities of a hypersurface on a smooth complex variety and measures the Hodge theory on the complement of the hypersurface. These Hodge ideals arise naturally from Saito's theory on the Hodge filtration of Hodge modules associated to the localization along a hypersurface and give a good generalization of multiplier ideals. I will give a general introduction to Hodge ideals for Q-divisors and show some applications in singularity theory. In particular, I will give explicit formulas of these ideals in some special cases and develop computational results of various invariants of singularities, e.g., generating level of Hodge filtration, roots of Bernstein-Sato polynomials and Hodge ideal spectrum.

Monday, October 21 at 4:00 PM in 427 SEO