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Motivic Zeta Functions for Plane Curve Singularities

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SUMMARY

Let X be a complete, geometrically irreducible, singular algebraic curve defined over a field of characteristic p big enough. Given a local ring $\mathcal{O}_{P,X}$ at a rational singular point P of X, we attached a universal zeta function which is a rational function and admits a functional equation if $\mathcal{O}_{P,X}$ is Gorenstein. This universal zeta function specializes to other known zeta functions and Poincaré series associated to singular points of algebraic curves. In particular, for the local ring attached to a complex analytic function in two variables, our universal zeta function specializes to the generalized Poincaré series introduced by Campillo, Delgado and Gusein-Zade. This is a joint work with W.A. Zúñiga-Galindo.

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