

THE MONODROMY CONJECTURE FOR A SPACE MONOMIAL CURVE WITH A PLANE SEMIGROUP

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Abstract: This article investigates the monodromy conjecture for a space monomial curve that appears as the special fiber of an equisingular family of curves with a plane branch as generic fiber. Roughly speaking, the monodromy conjecture states that every pole of the motivic, or related, Igusa zeta function induces an eigenvalue of monodromy. As the poles of the motivic zeta function associated with such a space monomial curve have been determined in earlier work, it remains to study the eigenvalues of monodromy. After reducing the problem to the curve seen as a Cartier divisor on a generic embedding surface, we construct an embedded \mathbb{Q} -resolution of this pair and use an A'Campo formula in terms of this resolution to compute the zeta function of monodromy. Combining all results, we prove the monodromy conjecture for this class of monomial curves.

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Key words: monodromy conjecture, zeta functions, resolution of singularities, weighted blow-ups, curve singularities.