A duality between monodromy and Poincaré polynomial in Landau-Ginzburg theory.

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We consider an affine complete intersection variety X whose compactification is defined in the product of quasihomogeneous projective spaces $\mathbf{P}^{(\tau_1)}_{(g_1^{(1)},\dots,g^{(1)}_{\tau_1+1})} \times \dots \times \mathbf{P}^{(\tau_k)}_{(g_1^{(k)},\dots,g^{(k)}_{\tau_k+1})}$. The variety X is supplied with k multiple quasihomogeneous weights. In the framework of Landau-Ginzburg theory and its application to the mirror symmetry conjecture, Berglund and Hübsch proposed a method to construct another complete intersection variety Y that is obtained after so called matrix transposition method from X. We show that the characteristic polynomial of monodromy data associated to a deformation of X (resp. Y) coincides with the Poincaré polynomial of the structure ring of Y (resp. X) under certain conditions. It turns out this is an easy corollary of an hypothesis by Candelas et altri on the period integrals of X.