

Reichelt, Thomas; Sevenheck, Christian

Non-affine Landau-Ginzburg models and intersection cohomology. (Modèles de Landau-Ginzburg non affines et cohomologie d'intersection.) (English. French summary)

Zbl 1395.14033

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The paper aims at constructing mirror models for complete intersections in smooth toric varieties in the case when these subvarieties have a numerically effective anticanonical bundle. Particular cases of such are toric Fano manifolds, whose mirror is usually described by oscillating integrals defined by Laurent polynomials, and Calabi-Yau hypersurfaces in toric Fano manifolds. Both occur as special cases of non-affine Landau-Ginzburg models (LGMs). The authors construct LGMs for numerically effective intersections of toric manifolds as partial compactifications of families of Laurent polynomials. They show that the quantum \mathcal{D} -module of the ambient part of the cohomology of the submanifold is isomorphic to an intersection cohomology \mathcal{D} -module defined from the partial compactification. They deduce Hodge properties of these differential systems.

Reviewer: Vladimir P. Kostov (Nice)

MSC:

- 14J33 Mirror symmetry (algebraic-geometric aspects)
- 14M25 Toric varieties, Newton polyhedra, Okounkov bodies
- 32S40 Monodromy; relations with differential equations and D -modules (complex-analytic aspects)
- 32S60 Stratifications; constructible sheaves; intersection cohomology (complex-analytic aspects)
- 14D07 Variation of Hodge structures (algebraic-geometric aspects)
- 34Mxx Ordinary differential equations in the complex domain
- 53D45 Gromov-Witten invariants, quantum cohomology, Frobenius manifolds

Cited in **1** Review
Cited in **6** Documents

Keywords:

Gauss-Manin system; hypergeometric \mathcal{D} -module; toric variety; intersection cohomology; Radon transformation; Landau-Ginzburg model; Calabi-Yau hypersurface

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