

Borcea, Ciprian

On desingularized Horrocks-Mumford quintics. (English) Zbl 0731.14003

J. Reine Angew. Math. 421, 23-41 (1991).

The vanishing locus of a general section in the rank-two Horrocks-Mumford vector bundle is an Abelian surface in \mathbb{P}_4 . A generic pencil of sections determines a quintic with 100 nodes. - We consider various projective (Calabi-Yau) small resolutions \tilde{V} of such quintics, compute their cubic form $D \rightarrow D^3$ on $H^2(\tilde{V})$ and describe their cone of effective curves. The latter turns out to be rational polyhedral except for the case of the “natural” resolution, when \tilde{V} maps to P_1 with Abelian surfaces as general fibres, and one has an infinity of sections corresponding to extremal rays accumulating to the ray given by the second Chern class.

In general, flopping rational curves may alter the isomorphy class of the cubic form.

Reviewer: [C.Borcea](#)

MSC:

14F05 Sheaves, derived categories of sheaves, etc. (MSC2010)

14J30 3-folds

14E15 Global theory and resolution of singularities (algebra-geometric aspects)

Cited in 5 Documents

Keywords:

nodal quintic; Calabi-Yau resolutions; rank-two Horrocks-Mumford vector bundle; cubic form

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