

Quasi-smooth Fano 3-fold hypersurfaces in the 95 families.

The 95 families of weighted Fano 3-fold hypersurfaces anticanonically embedded in weighted Fano 3-fold hypersurfaces with terminal singularities

$$X_d \subset \mathbb{P}(1, a_1, a_2, a_3, a_4)$$

where $d = a_1 + \dots + a_4$ $a_1 \leq a_2 \leq a_3 \leq a_4$.

1979 M. Reid codimension 1 weighted $K3$ surface

95 families of $(K3$ surfaces in 3-dim'd weighted projective spaces.)

"Canonical 3-folds"

1488 A.R. Iano-Fletcher

95 families of weighted Fano 3-fold hypersurfaces.

"Working with weighted complete intersections"

2001 J. Johnson and J. Kollár

Fano hypersurfaces in weighted projective 4-spaces. Exp. Math 10 (2001).

Examples.

$$X_4 \subset \mathbb{P}^4$$

$$X_5 \subset \mathbb{P}(1, 1, 1, 1, 2) \quad \frac{1}{2}(1, 1, 1)$$

$$X_6 \subset \mathbb{P}(1, 1, 1, 1, 3)$$

$$X_8 \subset \mathbb{P}(1, 5, 6, 22, 33)$$

$$\frac{1}{5}(1, 2, 3) \quad \frac{1}{2}(1, 1, 1)$$

$$\frac{1}{8}(1, 1, 2) \quad \frac{1}{11}(1, 5, 6)$$

