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Log Calabi-Yau geometry and Cremona maps

Online Nottingham Algebraic Geometry Seminar

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Theorem (- 2023)

Let $(\mathbb{P}^3; D)$ be a log Calabi-Yau pair of coregularity 2 and $: (X; D_X) \to (\mathbb{P}^3; D)$ be a volume preserving toric $(1; a; b)$-weighted blowup of a torus invariant point. Then this point is necessarily a singularity of D and, up to permutation, the only possibilities for the weights initiating a volume preserving Sarkisov link, depending on the type of singularities, are listed in the following table:

3-dimensional scenario

Volume preserving Sarkisov links

type of singularity	possible volume preserving weights
A_1	(1,1,1)
A_2	(1,1,1), (1,1,2)
A_3	(1,1,1), (1,1,2)
A_4	(1,1,1), (1,1,2), (1,2,3)
A_5	(1,1,1), (1,1,2), (1,2,3)
$A_{\geq 6}$	(1,1,1), (1,1,2), (1,2,3), (1,2,5)
D_4	(1,1,1), (1,1,2)
$D_{\geq 5}$	(1,1,1), (1,1,2), (1,2,3)
E_6	(1,1,1), (1,1,2), (1,2,3)
E_7	(1,1,1), (1,1,2), (1,2,3)
E_8	(1,1,1), (1,1,2), (1,2,3)

Table: [illegible]