Determining singularity type of Fano hypersurfaces

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I work with certain types of three-dimensional algebraic varieties over the complex numbers, namely sextic double solids. I put a singularity on them, namely a compound A_n singularity where n is a positive integer, and study their birational properties. For higher n, say $n = 6$, it is not easy to find examples of such varieties. I construct such examples, and give an algorithm to determine whether the variety has a cA_n singularity and find n. Moreover, this algorithm works for any three-dimensional hypersurface, and also works for two-dimensional A_n singularities. For an overview of singularity types, see [3]. For birational geometry of sextic double solids, see [1], [2], [4].

I will give an overview of birational geometry and analytic singularities, give motivation for the problem and describe my results.

References

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