ALGEBRAIC GEOMETRY SEMINAR

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Jet schemes of locally complete intersection canonical singularities

For a scheme X, the jet scheme X_m parametrizes truncated arcs of order m on X. If X is a locally complete intersection variety, then X has canonical singularities if and only if X_m is irreducible for every m. The proof of this result uses the idea of integration of spaces of arcs, as developed by Kontsevich, Batyrev, Denef and Loeser. The same idea can be used to give a formula for the log canonical threshold of a pair (Y, X), where Y is a smooth variety, in terms of the dimension of the jet schemes of X.

I will start by reviewing the definition and properties of jet schemes. I will explain how computations with jet schemes can be used effectively in the study of singularities and I will show how integration on spaces of arcs can be used to prove the above characterization.

Friday, February 16 at 2:30 pm
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