

Harvard-M.I.T. Algebraic Geometry Seminar

LOG DISCREPANCIES, JET SCHEMES AND INVERSION OF ADJUNCTION

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Abstract:

I will describe how an approach based on jet schemes that can be used to attack certain problems on singularities which appear in the Minimal Model Program. This talk will give a preview to (a part of) the course on multiplier ideals and jet schemes that I will be teaching. Fix a normal variety X which is \mathbf{Q} -Gorenstein, and a subscheme $Y \subset X$. If $W \subset X$ is a closed subset, and if $q \in \mathbf{Q}_+$, then the minimal log discrepancy $\text{mld}(W; X, q \cdot Y)$ can be defined in terms of resolutions of singularities.

The m th jet scheme of X is a scheme which parametrizes morphisms $\text{Spec } \mathbf{C}[t]/(t^{m+1}) \rightarrow X$. The basic ingredient will be a result which computes $\text{mld}(W; X, q \cdot Y)$ in terms of the part in the jet schemes of X and Y lying over W .

As a first application, I will deduce Inversion of Adjunction for hypersurfaces in a smooth variety. Another application will be to a proof of the semicontinuity of the function $x \rightarrow \text{mld}(x; X, q \cdot Y)$ when X is smooth.

The talk is based on joint work with L. Ein and T. Yasuda.

Tuesday, September 17

3:00 p.m.

Harvard Rm 507

<http://www-math.mit.edu/~jstarr/02sem/>.