Minimal log discrepancies and Kollár components

Abstract:

The minimal log discrepancy of an algebraic variety is an invariant which measures the singularities of the variety. For mild singularities the minimal log discrepancy is a non-negative real value; the closer to zero this value is, the more singular the variety. It is conjectured that in a fixed dimension, this invariant satisfies the ascending chain condition. In this talk we will show how boundedness of Fano varieties imply some local statements about the minimal log discrepancies of klt singularities. In particular, we will prove that the minimal log discrepancies of klt singularities which admit an $e$-plt blow-up can take only finitely many possible values in a fixed dimension. This result gives a natural geometric stratification of the possible mld’s on a fixed dimension by finite sets. As an application, we will prove the ascending chain condition for minimal log discrepancies of exceptional singularities in arbitrary dimension.

Special Note:
There will be a pretalk at 1:30pm.