Seminar/Talk

Positivity of the Chow-Mumford line bundle for families of K-stable Q-Fano varieties

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The Chow-Mumford (CM) line bundle is a functorial line bundle on the base of any family of polarized varieties, in particular on the base of families of Q-Fano varieties (that is, Fano varieties with klt singularities). It is conjectured that it yields a polarization on the conjectured moduli space of K-semi-stable Q-Fano varieties. This boils down to showing semi-positivity/positivity statements about the CM-line bundle for families with K-semi-stable/K-polystable Q-Fano fibers. I present a joint work with Giulio Codogni where we prove the necessary semi-positivity statements in the K-semi-stable situation, and the necessary positivity statements in the uniform K-stable situation, including in both cases variants assuming K-stability only for very general fibers. Our statements work in the most general singular situation (klt singularities), and the proofs are algebraic, except the computation of the limit of a sequence of real numbers via the central limit theorem of probability theory. I also present a birational geometry application to the classification of Fano varieties

Thursday, October 4, 2018 01:30pm - 03:30pm
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)