



Seminar/Talk

On the atomic decomposition of some complete intersections

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Host: Tamas Hausel

In this talk, we quickly recall a weaker notion of the Hodge atoms of Katzarkov--Kontsevich--Pantev--Yu which suffices to solve the irrationality of wide interesting varieties, such as very general smooth cubic 4-folds. This is done by introducing a super-analytic manifold (in the sense of Berkovich), which should be thought of as the parameter space for the Gromov--Witten potential. This supermanifold carries a natural action of the Hodge group, and at fixed points, the isomorphism classes (partitioned as generalized eigenspaces for the quantum multiplication action) of the isotropy representations are called coarse Hodge atoms". We explain to what extent this data can be read from Lie-theoretic content in the case of complete intersections in flag varieties, present an algorithm to compute atomic decomposition (implemented at <https://leonardofcavenaghi.github.io/atomicdecompositions/>), and present some theoretical results to obstruct the rationality of 4-folds and some 5-folds. This is based on two joint works: the in-progress 9.5-lecture series on the theory of atoms with L. Katzarkov and M. Kontsevich, and a recent work with B. Alexeev, G. Galindo, L. Katzarkov, and P. A. M. Martins.

Thursday, November 19, 2026 01:15pm - 04:15pm

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



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