Intersection theory and combinatorics

Karim Adiprasito^{1,*}

¹Einstein Institute for Mathematics, Hebrew University of Jerusalem, Israel *Email: karim.adiprasito@mail.huji.ac.il

I will review some interesting combinatorial problems and results, and discuss their relation to intersection theory of algebraic varieties. I will then discuss instances where these problems have led us to generalize concepts far beyond algebraic geometry. In particular, we will discuss the problem of embedding d-complexes in R^{2d} , the hard Lefschetz property for non-projective varieties and generic intersection theory.