

SEMINAR OF MATHEMATICS

Wednesday March 1st, 2017 at 14h15, CIB lecture hall [BI A0 448](#)

Dr. Karim Adiprasito (*Hebrew University Jerusalem*)

will present a seminar entitled:

"Beyond positivity"

Abstract:

The Hard Lefschetz Theorem's importance extends far beyond algebraic geometry. In particular, many deceptively simple combinatorial conjectures seem depend on this mysterious theorem, but are only known to be true if the associated varieties satisfy the Lefschetz theorem by virtue of the Kaehler package. For instance, Gruenbaum conjectured that for any simplicial d -complex X embedded in \mathbb{R}^{2d} , we have the inequality

$$(d+2) \times \#\{d-1\text{-dimensional simplices in } X\} > \#\{d\text{-dimensional simplices in } X\}$$

I will discuss a new way to prove the Lefschetz theorem beyond the availability of Hodge type theorems and address this conjecture and others, like the McMullen g -conjecture.

Lausanne, February 23, 2017 / mg