TECHNION
Israel Institute of Technology

Department of **Mathematics**

TECHNION MATH COLLOQUIUM

From elliptic curves to Ceresa cycles.

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Abstract: Given an algebraic variety X, and two subvarieties Y, Y', can Y be deformed to Y' within X? More generally, we would like to understand the different "deformation classes" of subvarieties of X of a given dimension. For topological deformations, the answer is given by singular cohomology and is rather well understood. For algebraic deformations, the answer is quite mysterious and depends heavily on the ground field. In codimension 1, this amounts to studying rational points on abelian varieties (such as elliptic curves). In higher codimension, much less is understood. I'll survey this topic and conclude by giving some new results in codimension two, concerning the so-called Ceresa cycles.