Higher Arithmetic Chow Groups.
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We give a new definition of higher arithmetic Chow groups for smooth projective varieties defined over a number field, which is similar to Gillet and Soulé’s definition of arithmetic Chow groups. We also give a compact description of the intersection theory of such groups. A consequence of this theory is the definition of a height pairing between two higher algebraic cycles, of complementary dimensions, whose real regulator class is zero. This description agrees with Beilinson’s height pairing for the classical arithmetic Chow groups. We also give examples of the higher arithmetic intersection pairing in dimension zero that is given by the Bloch-Wigner dilogarithm functions. This is based on the joint work with José Burgos Gil from IC-MAT, Spain (https://doi.org/10.1016/j.aim.2019.02.003). For those of you who have attended my talk in late November 2020, this can be thought of as a prelude.