

LIMIT PERIODS ON CURVES AND ARITHMETIC HEIGHTS

Emre Sertöz

Leibniz University Hannover, Germany

emre@serto.com

We recently proved that in a nodal degeneration of smooth curves, the periods of the resulting limit mixed Hodge structure (LMHS) contain arithmetic information. For instance, if the nodal fiber is identified with a smooth curve C glued at two points p and q then the LMHS relates to the Neron–Tate height of $p-q$ in the Jacobian of C . In making this relation precise, we observed that a “tropical correction term” is required that is based on finite reductions of the degenerate fiber. In this talk, I will explain this circle of ideas with a focus on the explicit and computable aspects.

Joint work with Spencer Bloch (University of Chicago) and Robin de Jong (Leiden University).