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Aaron Mazel-Gee* (aaron@etale.site), University of Southern California, Department of Mathematics, 3620 S. Vermont Ave., KAP 104, Los Angeles, CA 90089. *The geometry of the cyclotomic trace.*

Algebraic K -theory is a deep and far-reaching invariant, but it is notoriously difficult to compute. To date, the primary means of understanding K -theory is through its “cyclotomic trace” map $K \rightarrow TC$ to topological cyclic homology. This map is usually advertised as an analog of the Chern character, but this is something of a misnomer: TC is a further refinement of any flavor of de Rham cohomology (even “topological”, i.e. built from THH), though this discrepancy disappears rationally. However, despite the enormous success of so-called “trace methods” in K -theory computations, the algebro-geometric nature of TC has remained mysterious.

In this talk, I will present a new construction of TC that affords a precise interpretation of the cyclotomic trace at the level of derived algebraic geometry, which is based on nothing but universal properties (coming from Goodwillie calculus) and the geometry of 1-manifolds (via factorization homology). This is joint work with David Ayala and Nick Rozenblyum. (Received August 06, 2017)