AN ALGEBRAIC CYCLE ASSOCIATED TO A CURVE IN ITS JACOBIAN

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The Ceresa cycle is a canonical homologically trivial algebraic cycle associated to a curve in its Jacobian. In his 1983 thesis, Ceresa showed that this cycle is algebraically nontrivial for the generic curve over genus at least 3. Strategies for proving Fermat curves have infinite order Ceresa cycles due to B. Harris, Bloch, Bertolini-Darmon-Prasanna, Eskandari-Murty use a variety of ideas ranging from computation of explicit iterated period integrals, special values of p-adic L functions and points of infinite order on the Jacobian of Fermat curves. We will survey many recent results around the Ceresa cycle, and present ongoing work with Jordan Ellenberg, Adam Logan and Akshay Venkatesh where we produce many new explicit examples of curves over number fields with infinite order Ceresa cycles.