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EXPLICIT VOLOGODSKY INTEGRATION FOR HYPERELLIPTIC CURVES

Enis Kaya

University of Groningen

Abstract

Let X be a curve over a p -adic field with semi-stable Reduction and let ω be a meromorphic 1-form on X . There are two notions of p -adic integration one may associate to this data: the Berkovich-Coleman integral which can be performed locally; and the Vologodsky integral with desirable number-theoretic properties. In this talk, we present a theorem comparing the two, and describe an algorithm for computing Vologodsky integrals in the case that X is a hyperelliptic curve. We also illustrate our algorithm with a numerical example computed in Sage. This talk is partly based on joint work with Eric Katz.

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