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Jennifer S. Balakrishnan* (jenb@mit.edu). *Explicit iterated Coleman integration for hyperelliptic curves and the nonabelian Chabauty method.* Preliminary report.

Coleman's p -adic integration theory gives us explicit means of finding torsion and rational points on curves as well as computing p -adic regulators in K -theory. We describe an algorithm for computing Coleman integrals on hyperelliptic curves, including the natural generalization to iterated integrals. Specializing to the case of elliptic curves, we use our methods to study integral points via Kim's nonabelian Chabauty method. (Received September 14, 2010)