

Title: On the syntomic regulator for K_1 of a surface

Abstract: We consider elements of $K_1(X)$, where X is a proper surface over a p -adic field with good reduction, which are given by a formal sum $\sum(C_i, f_i)$ with C_i curves in X and f_i rational functions on the C_i in such a way that the sum of the divisors of the f_i is 0 on X . Our result computes the syntomic regulator of such an element, interpreted as a functional on $H_{dR}^2(X)$, when computed on the wedge product $\omega \wedge \eta$ of two holomorphic forms. The result is $\sum_i (F_\eta, \log(f_i); F_\omega)_{gl}$, where F_ω and F_η are Coleman integrals of ω and η respectively and the symbol in brackets refer is the global tripple index, as defined in our previous work.