Arithmetic of hyperelliptic curves over local fields

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Let C:y^2 = f(x) be a hyperelliptic curve over a local field K of odd residue characteristic. We show how several arithmetic invariants of the curve and its Jacobian, including its potential stable reduction, Galois representation and (in the semistable case) Tamagawa numbers, can be simply extracted from combinatorial data coming from the roots of f(x). This is joint work with Tim Dokchitser, Vladimir Dokchitser and Adam Morgan.