F-rational inflection of hyperelliptic curves: a t- and p-adic perspective

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ABSTRACT

Linear series algebraically codify maps from holomorphic curves to the complex projective space; the study of their inflection in space is a central theme of classical algebraic geometry. Inflection is computed by Wronskians, which are themselves interesting determinantal varieties. A celebrated theorem of Plucker calculates the inflection of a complex linear series as the degree of a Wronskian. It is natural to ask for analogues of Plucker's results over arbitrary base fields. In this talk we present results along this line for hyperelliptic curves defined over arbitrary fields using tools from non-archimedean algebraic geometry and A^1-homotopy theory. These results stem from joint work with I. Biswas, E. Cotterill, I. Darago, C. Han, and T. Shaska.