

ON THE FIRST ORDER THEORY OF FUNCTION FIELDS

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It is one of the main open problems to show that the first order theory of function fields over "nice base fields" encodes the isomorphism type. I plan to give a short introduction to the problem and the known facts, and also show how to reduce the problem to some classical questions in arithmetic and algebraic geometry (generally accepted as having positive answers). It turns out that the problem is actually about how to recover the (arithmetically) significant valuations using just the first order properties of the fields under consideration.