An algorithm for producing differential operators in prime characteristic

Alberto Fernández Boix

U. Pompeu Fabra

The goal of this talk is to provide a procedure which, given a polynomial f with coefficients in a finite field of prime characteristic p, produces a differential operator D such that $D(1/f) = 1/f^p$; the main application of this partial differential equation turns out to be a new characterization of ordinary and supersingular elliptic curves in terms of the level attached to D.

The content of this talk is based in a joint work with Alessandro De Stefani and Davide Vanzo.