1125-11-506 **Boris Adamczewski** and **Jason P Bell***, Department of Pure Mathematics, University of Waterloo, 200 University Ave. W., Waterloo, ON N2L3G1, Canada, and **Eric Delaygue**.
Algebraic independence of G-functions and Lucas congruences.

We consider complex power series $F(x)$ satisfying a linear homogeneous differential equation with polynomial coefficients that have the property that their coefficients like in a finitely generated ring. For such a power series it is possible to reduce modulo certain primes (maximal ideals) and get a power series $F_p(x)$ with coefficients in a finite field. We consider those that have the property that the coefficients of their $F_p(x)$ satisfy a so-called Lucas style recurrence (that is, $a_{pn+j} = a_n a_j$, where a_i denotes the coefficient of x^i in F_p). We show that many power series arising in number theory and combinatorics have this form and we show that one can often say interesting things about transcendence and special values. (This is joint work with Boris Adamczewski and Éric Delaygue.) (Received September 04, 2016)