NUMBER THEORY SEMINAR

Zero terms in linear recurrence sequences

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WHEN: Wed 10 Mar 2010, 3:30 p.m.

WHERE: Chase 319

ABSTRACT:

The theorem of Skolem-Mahler-Lech describes the possible sets of zero terms in sequences that satisfy linear recurrence relations with constant coefficients. In characteristic zero, they are comprised, up to a finite set, of finitely many infinite arithmetic progressions. Work of Bézivin and Methfessel shows that this result still holds true under suitable conditions for sequences that satisfy linear recurrence relations with coefficients that are generally nonconstant, assuming we replace the exceptional finite set with a set of density zero. In the constant coefficient case, we can eliminate the possibility of arithmetic progressions in case no two distinct eigenvalues of our sequence share a common power. In the general case, we can eliminate the possibility of arithmetic progressions in case the sequence cannot be sectioned to obtain sequences of lower order. In this talk, it will be shown that this latter condition reduces to the former in case of constant coefficients and a unified result will be obtained.

Any questions, please email: rnoble@mathstat.dal.ca.