CASTS TALKS

TIMS Taipei Number Theory Seminar (2018)

On a problem of Sidon

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2018 - 08 - 24 (Fri.)
10:30 - 11:30
103, Mathematics Research Center Building (ori. New Math. Bldg.)

Let (omega) be a sequence of positive integers. Given a positive integer (n), we define [r_n(omega) = | { (a,b)in mathbb{N}times mathbb{N}colon a,b in omega, a+b = n, 0 <a0) for all (n) sufficiently large and, for all (epsilon > 0), [lim_{n rightarrow infty} frac{r_n(omega)}{n^{epsilon}} = 0.] P. ErdH{o}s proved this conjecture by showing the existence of a sequence (omega) of positive integers such that [log n ll r_n(omega) ll log n.] In this talk, we prove an analogue of this conjecture in (mathbb{F}_q[T]), where (mathbb{F}_q) is a finite field of (q) elements. More precisely, let (omega) be a sequence in (mathbb{F}_q[T]). Given a polynomial (hinmathbb{F}_q[T]), we define [begin{split} r_h(omega) & = |{(f,g) in mathbb{F}_q[T]times mathbb{F}_q[T] : f,gin omega, f+g =h, & deg f, deg g leq deg h, fne g}|. end{split}] We show that there exists a sequence (omega) of polynomials in (mathbb{F}_q [T]) such that [deg h ll r_h(omega) ll deg h] for (deg h) sufficiently large. This is a joint work with Shuntaro Yamagishi.</a

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