

1125-03-124

**Alexandra Shlapentokh\*** (shlapentokha@ecu.edu), Department of Mathematics, East Carolina University, Greenville, NC 27858. *On Existential Definability of C.E. Sets over Function Rings of Characteristic 0*. Preliminary report.

The connection between computably enumerable sets and existential (or Diophantine) definability in the language of rings goes back to the solution of Hilbert's Tenth Problem, when Davis, Putnam, Robinson and Matiyasevich showed that all c.e. subsets of natural numbers were existentially definable (over natural numbers). This result implied that Hilbert's Tenth Problem had no solution, i.e. there was no algorithm to determine whether an arbitrary equation in several variables with integer coefficients had integer solutions. Since the time of the solution of this problem, the question of definability of c.e. sets was explored over other domains, in particular over rings of functions of characteristic 0. I will discuss some old and new results concerning existential definability over these rings.

(Received August 22, 2016)