

TITLE: Siegel's Lemma is usually sharp.

ABSTRACT: With Roger Baker we have shown that the classical upper bound  $c(N)U^{\frac{M}{N-M}}$  for the size of a non-zero solution of a system of  $M$  homogeneous linear equations in  $N > M$  variables, with rational integer coefficients of absolute values at most  $U \geq 1$ , usually cannot be improved; more precisely there is  $\delta = \delta(N) > 0$  such that given any  $B \geq 1$  the upper bound  $U^{\frac{M}{N-M}}/B$  can be achieved for at most  $C(N)U^{MN}/B^\delta$  of the roughly  $(2U)^{MN}$  possible systems. In this talk we sketch the proof.