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**Vlad Matei\*** (matei@wisc.edu). *A geometric perspective on Landau's problem over function fields.*

We improve on results presented in Lior Bary-Soroker, Yotam Smilansky, Adva Wolf, *On the Function Field Analogue of Landau's Theorem on Sums of Squares* which deals with a function field version of Landau's theorem on the asymptotic number of positive integers  $\leq X$  which can be written as a sum of two squares. The above paper presents the results in the large degree limit and  $q$  limit. We obtain an expansion of  $B_q(n)$  which counts the number of degree  $n$  monic polynomials that can be written as  $f = |A^2 - TB^2|$  for  $A, B \in \mathbb{F}_q[T]$  that works in the  $q^n \rightarrow \infty$  regime. Our approach is by using a twisted Grothendieck Lefschetz trace formula analogous to the one in Thomas Church, Jordan S. Ellenberg, Benson Farb, *Representation stability in cohomology and asymptotics for families of varieties over finite fields*, Contemporary Mathematics 620 (2014), 1-54. (Received August 26, 2016)