

1086-14-1135

Asher Auel* (aue1@cims.nyu.edu), Courant Institute of Mathematical Sciences, New York University, **R. Parimala** (parimala@mathcs.emory.edu), Department of Mathematics & CS, Emory University, and **V. Suresh** (suresh@mathcs.emory.edu), Department of Mathematics & CS, Emory University. *Quadric surface bundles and quaternion algebras.*

We study quadric surface bundles $X \rightarrow S$, i.e., families of quadric surfaces parameterized by S and degenerating to cones along a divisor $D \subset S$. We show that when S is a regular surface, quadric surface bundles are classified by quaternion Azumaya algebras over a double cover $T \rightarrow S$ branched along the degeneration divisor D . Among the many arithmetic and geometric applications of this result, in this talk we will highlight: constructing counterexamples to the local-global principle for zeros of quadratic forms over function fields of surfaces, and the geometry of cubic fourfolds containing a plane. (Received September 19, 2012)