Meeting: 999, Nashville, Tennessee, SS 8A, Special Session on Algebraic Geometry and Commutative Algebra

999-13-138 H. Tai Ha\* (tai@math.tulane.edu), Tulane University, Department of Mathematics, 6823 St. Charles Ave., New Orleans, LA 70118. Asymptotic behaviour of arithmetically Cohen-Macaulay blow-ups.

Let R be a standard graded k-algebra, and let  $I \subseteq R$  be a homogeneous ideal. In this talk, we discuss the problem of when there exists a linear bound on c and e such that the blow-up algebra  $k[I_c^e]$ , where  $I_c^e$  is the degree c piece of the e-th power of I. This problem is closely related to the problem of arithmetic Macaulayfication of projective schemes. We give a complete answer to the question, namely, under a necessary condition, we give an explicit description of the best possible such linear bound. This is part of my joint work with N.V. Trung. (Received August 19, 2004)