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**Patrick J. Morandi** and **B. A. Sethuraman\*** ([al.sethuraman@csun.edu](mailto:al.sethuraman@csun.edu)), Department of Mathematics, California State University Northridge, Northridge, CA 91325. *Valuations on Tensor Powers of a Division Algebra.*

We study the following question in this paper: If  $p$  is a prime,  $m$  a positive integer, and  $S = (s_m, \dots, s_1)$  an arbitrary sequence consisting of “Y” or “N”, does there exist a division algebra of exponent  $p^m$  over a valued field  $(F, v)$  such that the underlying division algebra of the tensor power  $D^{\otimes p^i}$  has a valuation extending  $v$  if and only if  $s_{m-i} = Y$ ? We show that if such an algebra exists, then its index must be bounded below by a power of  $p$  that depends on both  $m$  and  $S$ , and we then answer the question affirmatively by constructing such an algebra of minimal index. (Received September 01, 2005)