

Meeting: 999, Nashville, Tennessee, SS 7A, Special Session on Operator Theory on Function Spaces

999-47-179 **Raul E Curto*** (rcurto@math.uiowa.edu), Department of Mathematics, The University of Iowa, Iowa City, IA 52242. *Hyponormality, k -hyponormality, and subnormality for Toeplitz operators.*

We discuss the gap between 2-hyponormality and subnormality for Toeplitz operators. In joint work with W.Y. Lee, we have established that every 2-hyponormal Toeplitz operator with either trigonometric symbol or unitarily equivalent to a unilateral weighted shift must be subnormal. On the other hand, in joint work with S.H. Lee and W.Y. Lee we have exploited C. Cowen and J. Long's construction of a nontrivial subnormal Toeplitz operator to provide an example of a nonsubnormal 2-hyponormal Toeplitz operator. We also show that, under a suitable condition on the symbol, a 2-hyponormal Toeplitz operator with nonzero self-commutator must be normal or analytic.

These results are intimately connected to the study of reduced Cowen sets. In joint work with M. Chō and W.Y. Lee, we have proved that the set of $N \times N$ lower triangular Toeplitz contractions is compact and strictly convex; as an application, we show that the reduced Cowen set for an analytic polynomial is strictly convex, which allows us to answer a question of Cowen in the negative. At the same time, we obtain a general sufficient condition for the answer to be affirmative. (Received August 22, 2004)