k-hyponormality and n-contractivity for Agler-type shifts

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The well-known Bran-Halmos condition for subnormality of Hilbert space operators gives rise to the classes of k-hyponormal operators, $k = 1, 2, \cdots$. The Agler-Embry condition for subnormality of a contraction uses the n-contractive classes, $n =, 1, 2, \cdots$. The comparative study of these classes has been fruitful: for example, if a contraction is k-hyponormal it is $2k$-contractive. We consider some back-step extensions of Agler model weighted shifts for which an n-contractivity condition guarantees (in some cases, is equivalent to) a k-hyponormality one. Elements of the study include the Berger measure of a subnormal shift and orthogonal polynomials.