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The $\bar{\partial}$ -cohomology groups, holomorphic Morse inequalities, and finite type conditions.

We study spectral behavior of the complex Laplacian on forms with values in the k -th tensor power of a holomorphic line bundle over a smoothly bounded domain with degenerated boundary in a complex manifold. In particular, we prove that in the two dimensional case, a pseudoconvex domain is of finite type if and only if for any positive constant C , the number of eigenvalues of the $\bar{\partial}$ -Neumann Laplacian less than or equal to Ck has at most polynomial growth as k tends to infinity. (Received February 01, 2008)