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Gerardo A Mendoza* (gmendoza@temple.edu), Department of Mathematics, Temple University, Philadelphia, PA 19122. *Powers of holomorphic vector bundles and spaces of holomorphic sections*. Preliminary report.

Let \mathcal{B} be a compact complex manifold, let $E \rightarrow \mathcal{B}$ be a positive holomorphic line bundle. We will prove an estimate from below for the smallest integer m such that E^m admits a global nontrivial holomorphic section. We will show that any of the numbers m for which E^m has such sections is the square root of a positive eigenvalue of a Laplacian on a compact manifold, so m can be estimated by known lower bounds for the first eigenvalue of that Laplacian. (Received February 06, 2006)