

# Convergence of the Fubini-Study currents for singular metrics on line bundles and applications

*Abstract.* Let  $L$  be a holomorphic line bundle over a compact Kähler manifold  $X$  endowed with a singular Hermitian metric  $h$  with positive curvature current  $c_1(L, h)$ . We prove generalizations to this setting of the Tian-Yau-Zelditch theorem, by showing that suitable powers  $p^{-k}\gamma_p^k$  of the Fubini-Study currents  $\gamma_p$  associated to the spaces of  $L^2$ -holomorphic sections of  $L^{\otimes p}$  converge weakly on  $X$  to  $c_1(L, h)^k$ . As shown by Shiffman and Zelditch in the case of ample line bundles, this yields equidistribution results for the common zero sets of  $k$ -tuples of random holomorphic sections of  $L^{\otimes p}$  as  $p \rightarrow \infty$ . We apply this to prove approximation theorems for  $c_1(L, h)^k$  by currents of integration along zero sets of holomorphic sections of  $L^{\otimes p}$ . The results are joint work with George Marinescu.