VIRTUAL EAST-WEST SCV SEMINAR

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On the cohomology vanishing with polynomial growth on complex manifolds with pseudoconvex boundary

$\bar{\partial}$ coholomology groups with polynomial growth $H^{r,s}_{p.g.}$ will be studied. It will be shown that, given a complex manifold M, a locally pseudoconvex bounded domain $\Omega \subset\subset M$ satisfying certain geometric boundary condition and a holomorphic vector bundle $E \to M$, $H^{r,s}_{p.g.}(\Omega, E) = 0$ holds for all $s \geq 1$ if E is Nakano positive and $r = \dim M$. It will be also shown that $H^{r,s}_{p.g.}(\Omega, E) = 0$ for all r and s with $r + s > \dim M$ if moreover $\operatorname{rank} E = 1$. By Deligne-Maltsiniotis-Sasakura's comparison theorem, it follows in particular that, for any smooth projective variety X, for any ample line bundle $L \to X$ and for any effective divisor D on X such that $[D]|_{|D|} \geq 0$, the algebraic cohomology $H^s_{alg}(X \setminus |D|, \Omega^r_X(L))$ vanishes if $r + s > \dim X$.