

ГОДИШНИК НА СОФИЙСКИЯ УНИВЕРСИТЕТ „СВ. КЛИМЕНТ ОХРИДСКИ“

ФАКУЛТЕТ ПО МАТЕМАТИКА И ИНФОРМАТИКА

Том 97

ANNUAIRE DE L'UNIVERSITE DE SOFIA „ST. KLIMENT OHRIDSKI“

FACULTE DE MATHEMATIQUES ET INFORMATIQUE

Tome 97

---

VANISHING OF THE FIRST DOLBEAULT  
COHOMOLOGY GROUP OF HOLOMORPHIC  
LINE BUNDLES ON COMPLETE INTERSECTIONS  
IN INFINITE DIMENSIONAL PROJECTIVE SPACE

BORIS KOTZEV

We consider a complex submanifold  $X$  of finite codimension in an infinite-dimensional complex projective space  $\mathbf{P}$  and prove that the first Dolbeault cohomology group of all line bundles  $\mathcal{O}_X(n)$ ,  $n \in \mathbb{Z}$ , vanishes when  $X$  is a complete intersection and  $\mathbf{P}$  admits smooth partitions of unity.

**Keywords:** Dolbeault cohomology groups, infinite-dimensional complex manifolds, projective manifolds, vanishing theorems

**2000 MSC:** main 32L20, secondary 58B99

*Received December 15, 2004*

Faculty of Mathematics and Informatics  
“St. Kl. Ohridski” University of Sofia  
5, J. Bourchier blvd., 1164 Sofia  
BULGARIA  
E-mail: bkotzev@fmi.uni-sofia.bg