Tai-Wei Chen, Chung-I Ho, Jyh-Haur Teh*

E_1-degeneration and $d'd''$-lemma

Comment.Math.Univ.Carolin. 57,2 (2016) 155 –162.

Abstract: For a double complex (A, d', d''), we show that if it satisfies the $d'd''$-lemma and the spectral sequence $\{E_r^{p,q}\}$ induced by A does not degenerate at E_0, then it degenerates at E_1. We apply this result to prove the degeneration at E_1 of a Hodge-de Rham spectral sequence on compact bi-generalized Hermitian manifolds that satisfy a version of $d'd''$-lemma.

Keywords: $\partial\overline{\partial}$-lemma; Hodge-de Rham spectral sequence; E_1-degeneration; bi-generalized Hermitian manifold
AMS Subject Classification: 55T05, 53C05

References

[C] Cavalcanti G., *New aspects of the dd^c-lemma*, Oxford Univ. DPhil. thesis, arXiv:math/0501406v1[math.DG].

[Ca07] Cavalcanti G., *Introduction to generalized complex geometry*, impa, 26-Coloquio Brasileiro de Matematica, 2007.

[CHT] Chen T.W., Ho C.I., Teh J.H., *Aeppli and Bott-Chern cohomology for bigeneralized Hermitian manifolds and $d'd''$-lemma*, J. Geom. Phys. **93** (2015), 40–51.

[DGMS] Deligne P., Griffiths P., Morgan J., Sullivan D., *Real homotopy theory of Kähler manifolds*, Invent. Math.**29** (1975), no. 3, 245–274.

[G1] Gualtieri M., *Generalized complex geometry*, Ann. of Math. **174** (2011), 75–123.

[M] McCleary J., *A User's Guide to Spectral Sequences*, 2nd edition, Cambridge studies in advanced mathematics, 58, Cambridge University Press, Cambridge, 2001.