

NEW ADVANCES ON THE GROTHENDIECK'S INEQUALITY PROBLEM FOR BILINEAR FORMS ON JB*-TRIPLES

ANTONIO M. PERALTA

Abstract. We give a positive answer to the Barton-Friedman's conjecture on "Grothendieck's inequalities" for Cartan factors and JBW*-triples.

Mathematics subject classification (2000): 17C65, 46K70, 46L05, 46L70.

Key words and phrases: Grothendieck's inequalities, JB*-triples.

REFERENCES

- [1] BARTON, T. AND FRIEDMAN, Y., *Grothendieck's inequality for JB*-triples and applications*, J. London Math. Soc. **36** 2 (1987) 513–523 .
- [2] BARTON, T. AND TIMONEY, R. M., *Weak*-continuity of Jordan triple products and its applications*, Math. Scand. **59**, (1986) 177–191 .
- [3] CHU, C.-H., IOCHUM, B., AND LOUPIAS, G., *Grothendieck's theorem and factorization of operators in Jordan triples*, Math. Ann. **284**, (1989) 41–53 .
- [4] S. DINEEN, *The second dual of a JB*-triple system*, In: Complex analysis, functional analysis and approximation theory (ed. by J. Múgica), 67–69, (North-Holland Math. Stud. 125), North-Holland, Amsterdam-New York, 1986.
- [5] EDWARDS, C. M., *On Jordan W^* -algebras*, Bull. Sci. Math. **104**, 2 (1980) 393–403 .
- [6] FRIEDMAN, Y. AND RUSSO, B., *Structure of the predual of a JBW*-triple*, J. Reine u. Angew. Math. **356**, (1985) 67–89 .
- [7] FRIEDMAN, Y. AND RUSSO B., *The Gelfand-Naimark Theorem for JB* -triples*, Duke Math. J. **53**, (1986) 139–148 .
- [8] GROTHENDIECK, A., *Résumé de la théorie métrique des produits tensoriels topologiques*, Bol. Soc. Mat. São Paulo **8**, (1956) 1–79 .
- [9] HAAGERUP, U., *Solution of the similarity problem for cyclic representations of C^* -algebras*, Ann. of Math. **118**, (1983) 215–240 .
- [10] HAAGERUP, U., *The Grothendieck inequality for bilinear forms on C^* -algebras*, Adv. Math. **56**, (1985) 93–116 .
- [11] HANCHE-OLSEN, H. AND STØRMER, E., *Jordan operator algebras*, Monographs and Studies in Mathematics 21, Pitman, London-Boston-Melbourne 1984 .
- [12] HO, T., MARTÍNEZ-MORENO J., PERALTA, A. M. AND RUSSO, B., *Derivations on real and complex JB*-triples*, J. London Math. Soc. **65** 2, (2002) 85–102 .
- [13] KAUP, W., *Über die Klassifikation der symmetrischen hermiteschen Mannigfaltigkeiten unendlicher Dimension. I*, Math. Ann. **257**, 4 (1981), 463–486 .
- [14] KAUP, W., *A Riemann mapping theorem for bounded symmetric domains in complex Banach spaces*, Math. Z. **183**, (1983) 503–529 .
- [15] PERALTA, A. M., *Little Grothendieck's theorem for real JB*-triples*, Math. Z., **237**, 3 (2001) 531–545 .
- [16] PERALTA, A. M. AND RODRÍGUEZ PALACIOS, A., *Grothendieck's inequalities for real and complex JBW*-triples*, Proc. London Math. Soc. (3) **83** 3 (2001), 605–625 .
- [17] PERALTA, A. M. AND RODRÍGUEZ PALACIOS, A., *Grothendieck's inequalities revisited*, Recent progress in functional analysis (Valencia, 2000), 409–423, North-Holland Math. Stud., 189, North-Holland, Amsterdam, 2001 .

- [18] PISIER, G., *Grothendieck's theorem for non commutative C^* -algebras with an appendix on Grothendieck's constant*, J. Funct. Anal. **29**, (1978), 397–415.
- [19] RODRÍGUEZ A., *On the strong* topology of a JBW*-triple*, Quart. J. Math. Oxford **42** 2 (1989), 99–103.
- [20] SAKAI, S.: *C^* -algebras and W^* -algebras*, Springer-Verlag, Berlin 1971.
- [21] WRIGHT, J. D. M., *Jordan C^* -algebras*, Michigan Math. J. **24**, (1977) 291–302.