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Deformation quantizations with separation of variables on a Kähler manifold. (English)

Zbl 0866.58037

Commun. Math. Phys. 180, No. 3, 745-755 (1996).

A deformation quantization on a symplectic manifold M is an associative algebra structure on the space $C^\infty(M)[[v]]$ of formal power series such that the algebra multiplication $*$ is a deformation of the ordinary multiplication of functions on M and the $*$ -commutator is a deformation of the Poisson bracket. In this paper the author considers deformation quantizations on Kähler manifolds that satisfy the following separation of variables property. For each open set $U \subseteq M$ the $*$ -multiplication from the left by a holomorphic function and from the right by an antiholomorphic function coincides with the ordinary multiplication. He shows that these quantizations are in 1-1 correspondence with the formal deformations of the original Kähler metric.

Reviewer: V.Perlick (Berlin)

MSC:

53D50 Geometric quantization

81S10 Geometry and quantization, symplectic methods

53B35 Local differential geometry of Hermitian and Kählerian structures

Cited in **9** Reviews
Cited in **47** Documents

Keywords:

deformation quantization; Kähler manifolds; separation of variables

Full Text: [DOI](#) [arXiv](#)

References:

- [1] Bayen, F., Flato, M., Fronsdal, C., Lichnerowicz, A., Sternheimer, D.: Deformation theory and quantization. Ann. Phys.111, 1–151 (1978) · Zbl 0377.53025 · doi:10.1016/0003-4916(78)90221-X
- [2] Berezin, F.A.: Quantization. Math. USSR Izv.8, 1109–1165 (1974) · Zbl 0312.53049 · doi:10.1070/IM1974v008n05ABEH002140
- [3] Cahen, M., Gutt, S., Rawnsley, J.: Quantization of Kähler manifolds, II. Trans. Am. Math. Soc.337, 73–98 (1993) · Zbl 0788.53062 · doi:10.2307/2154310
- [4] Cahen, M., Gutt, S., Rawnsley, J.: Quantization of Kähler manifolds, IV. Lett. Math. Phys.34, 159–168 (1995) · Zbl 0831.58026 · doi:10.1007/BF00739094
- [5] Karabegov, A.V.: On deformation quantization on a Kähler manifold associated to Berezin’s quantization. To appear in Funct. Anal. Appl. · Zbl 0869.53045
- [6] Moreno, C.: $*$ -products on some Kähler manifolds. Lett. Math. Phys.11, 361–372 (1986) · Zbl 0618.53049 · doi:10.1007/BF00574162
- [7] Moreno, C.: Invariant star products and representations of compact semisimple Lie groups. Lett. Math. Phys.12, 217–229 (1986) · Zbl 0681.53036 · doi:10.1007/BF00416512

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