

Weinstein, Alan; Xu, Ping

Hochschild cohomology and characteristic classes for star-products. (English) [Zbl 0956.53055](#)
Khovanskij, A. (ed.) et al., Geometry of differential equations. Dedicated to V. I. Arnold on the occasion of his 60th birthday. Providence, RI: American Mathematical Society. Transl., Ser. 2, Am. Math. Soc. 186(39), 177-194 (1998).

Authors' abstract: We show that the Hochschild cohomology of the algebra obtained by formal deformation quantization on a symplectic manifold, is isomorphic to the formal series with coefficients in the de Rham cohomology of the manifold. The cohomology class obtained by differentiating the star-product with respect to the deformation parameter is seen to be closely related to the characteristic class of the quantization. A fundamental role in the analysis is played by "quantum Liouville operators", which rescale the deformation parameter in the same way in which Liouville vector fields scale the Poisson structure (or the units of action). Several examples are given.

For the entire collection see [\[Zbl 0896.00014\]](#).

MSC:

- [53D55](#) Deformation quantization, star products
- [57R20](#) Characteristic classes and numbers in differential topology
- [19D55](#) *K*-theory and homology; cyclic homology and cohomology
- [22A22](#) Topological groupoids (including differentiable and Lie groupoids)

Cited in **13** Documents

Keywords:

quantum Liouville operators; Hochschild cohomology; formal deformation quantization; de Rham cohomology; star-product; Poisson structure

Full Text: [arXiv](#)