

**Kaufmann, Ralph M.**

**The geometry of moduli spaces of pointed curves, the tensor product in the theory of Frobenius manifolds and the explicit Künneth formula in quantum cohomology.** (English)

Zbl 0918.14011

*Bonner Mathematische Schriften*. 312. Bonn: Univ. Bonn, Mathematisch-Naturwissenschaftliche Fakultät, 95 p. (1998).

This thesis develops further the results of an article by *R. Kaufmann*, *Yu. Manin* and *D. Zagier* [Commun. Math. Phys. 181, No. 3, 763-787 (1996; Zbl 0890.14011)] and their applications.

It has three chapters. The first one discusses the intersection of strata classes in  $\overline{M}_{g,n}$  and provides the formulae for the intersection matrices in cohomology of  $\overline{M}_{0,n}$  (moduli space of pointed curves of genus 0), and for Weil-Petersson volumes. These results are used in chapter two to define the tensor product of the pointed Frobenius manifolds. In chapter 3 the formulae from chapters 1 and 2 are used to derive the explicit Künneth formula for quantum cohomology. Examples of products of two and three 3-dimensional Calabi-Yau manifolds are discussed at the end.

Reviewer: [A.Rudakov \(Trondheim\)](#)

**MSC:**

- [14H10](#) Families, moduli of curves (algebraic)
- [14F99](#) (Co)homology theory in algebraic geometry
- [55N20](#) Generalized (extraordinary) homology and cohomology theories in algebraic topology
- [81T30](#) String and superstring theories; other extended objects (e.g., branes) in quantum field theory

Cited in 1 Review

**Keywords:**

moduli space of pointed curves of genus 0; Weil-Petersson volumes; Künneth formula for quantum cohomology; Calabi-Yau manifolds