



Non-commutative Hodge structures: Towards matching categorical and geometric examples

D. Shklyarov

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The subject of the present work is the de Rham part of non-commutative Hodge structures on the periodic cyclic homology of differential graded algebras and categories. We discuss explicit formulas for the corresponding connection on the periodic cyclic homology viewed as a bundle over the punctured formal disk. Our main result says that for the category of matrix factorizations of a polynomial the formulas reproduce, up to a certain shift, a well-known connection on the associated twisted de Rham cohomology which plays a central role in the geometric approach to the Hodge theory of isolated singularities.

Comments: v2 57 pages, typos corrected, some clarifications in the Introduction, new Sections 3.5 and 5 (following suggestions of referee), acknowledgements and references added, other minor changes. To appear in Transactions of the AMS

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