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Ivan Horozov* (horozov@math.wustl.edu), Washington University in St. Louis, Department of Mathematics, One Brookings Dr, Campus Box 1146, Saint Louis, MO 63130. *Non-commutative Hilbert modular symbol.*

I am going to present a construction of non-commutative Hilbert modular symbol, which is a generalization of Manin's non-commutative modular symbol to the case of Hilbert modular groups. I use a new method based on generalization of iterated path integrals to higher dimensions, which I call iterated integrals over membranes. (Iterated integrals were used by K.-T. Chen to give de Rham structure on a loop space of a manifold.)

Manin examines similarities between non-commutative modular symbol and multiple zeta values both in terms of infinite series and in terms of iterated path integrals. I will present similarities in the formulas for non-commutative Hilbert modular symbol and multiple Dedekind zeta values both in terms of infinite series and in terms of iterated integrals over membranes.

Manin's non-commutative modular symbol is a non-commutative 1-cocycle. Similarly, the non-commutative Hilbert modular symbol is a non-commutative 2-cocycle. (Received January 14, 2014)