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**Ivan E. Horozov\*** ([horozov@math.wustl.edu](mailto:horozov@math.wustl.edu)), Washington University in St. Louis, One Brookings Dr., Campus Box 1146, Saint Louis, MO 63130. *Non-commutative Hilbert Modular Symbols*.

In this paper we construct non-commutative Hilbert modular symbols, which are generalizations of Manin's non-commutative modular symbol. We use a generalization of iterated path integrals to higher dimensions, which we call iterated integrals on membranes. 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. Here we examine 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 on membranes. A key geometric ingredient is a "tetrahedron" with thickened edges, which resembles a 2-cocycle relation for the modular symbols. (Received July 05, 2014)