1107-11-448 **Ivan Horozov*** (horozov@math.wustl.edu), Washington University in St. Louis, Department of Mathematics, 1 Brookings Dr, CB 1146, Saint Louis, MO 63130. *Non-commutative Hilbert modular symbols.*

In this talk I will present a construction of (non-)commutative Hilbert modular symbols using a type of two-dimensional iterated integrals which I call iterated integrals on membranes. In many cases, the ingredients of such symbols are periods related to Hilbert modular surfaces. They also have a natural action of the Hecke operators in the case when the narrow class group is trivial; (roughly speaking, when we have unique factorization in the ring of integers in the number field). A similar construction can be used to define multiple Dedekind zeta values, which are a number theoretic analogue of Euler's multiple zeta values. The relation between non-commutative Hilbert modular symbols and and multiple Dedekind zeta values is similar to the relation between Manin's non-commutative modular symbol and Euler's multiple zeta values.

One current research topic of mine is to drop the restriction that the narrow class group is trivial. That requires working with iterated integrals over the adeles. So far I have a representation of Euler's multiple zeta values as iterated integrals over the adeles, which leads naturally to double shuffle relations. (Received January 20, 2015)