1067-47-653 **Anna Skripka***, skripka@math.ucf.edu, and **Denis Potapov** and **Fedor Sukochev**.

Applications of multiple operator integration.

Multiple operator integration has been a powerful tool in the study of functions of operators and their derivatives. A prominent example is Potapov-Sukochev's proof of the fact that every Lipschitz function is operator Lipschitz in the non-commutative L^p-space, $1 < p < \infty$, associated with a semi-finite von Neumann algebra. We can also interpret this result as one on Taylor-type approximation for functions of operators. The talk will concentrate on estimates for higher order Taylor remainders (in the context of von Neumann algebras) and their application to mathematical physics obtained by means of multiple operator integration. (Received September 12, 2010)