

ANALYSIS AROUND NON-COMMUTATIVE L_p -SPACES

The framework of non-commutative L_p -spaces is based on the theory of von Neumann algebras. The theory of von Neumann algebras itself is a non-commutative generalization of classical measure theory. In this talk, after explaining this framework, we shall discuss some aspects of analysis on non-commutative L_p -spaces. These include isometries on Schatten- p classes, non-commutative maximal ergodic theorems, non-commutative singular integral operators, dilation and Matsaev's conjecture on non-commutative L_p -spaces. We also see how some of these things relate to classical problems in operator theory and harmonic analysis. In particular, we shall discuss briefly a multivariate generalization of a famous problem of Paul Halmos and a question asked by N. Th. Varopoulos regarding von Neumann inequality.