998-30-91 **Michael Shapiro*** (shapiro@esfm.ipn.mx), Mexico. *On rational quaternionic functions and their applications to operator theory.*

Complex rational functions form an important class with developments in many directions. An attempt to generalize any of them directly onto, say, the situation of several complex variables meets immediately many difficulties typical for that theory. In this talk based on a joint work with D. Alpay and D. Volok, there will be presented the concept of rational quaternionic functions which are hyperholomorphic, i. e. which are in the kernel of the Fueter operator. The latter is not a trivial fact since the quotient of two quaternionic polynomials of a usual quaternionic variable is not hyperholomorphic; our approach is based on the Cauchy-Kovalevskaya product and on the respective inverse. Some properties of such rational functions will be discussed, the equivalent definitions in terms of realizations and of backward-shift operators will be given which result in applications to operator theory. (Received February 13, 2004)