1003-33-1593 **Michael J. Schlosser*** (`schlosse@ap.univie.ac.at`), Faculty of Mathematics, University of Vienna, Nordbergstrasse 15, A-1090 Vienna, Austria. *Identities for noncommutative hypergeometric series.*

Hypergeometric series with noncommutative parameters and argument, in the special case involving square matrices, have recently been studied by a number of researchers including (in alphabetical order) Duran, Duval, Grünbaum, Iliev, Ovsienko, Pacharoni, Tirao, Van Assche, and others. It is speculated that such series play an important role in areas such as geometry, mathematical phyiscs, and signal processing. A substantial amount of theory of orthogonal polynomials involving matrices has already been worked out. It seems equally appropriate to study noncommutative hypergeometric series (and their q-analogues) from an entirely elementary point of view. This includes the search for identities for noncommutative hypergeometric and noncommutative basic hypergeometric series, extending their classical commutative versions which can be found in the standard textbooks of Slater, and of Gasper and Rahman.

In our talk, we present a number of results of our search (which were inspired by a recent paper of J.A. Tirao [Proc. Nat. Acad. Sci. 100 (14) (2003), 8138–8141]) which we hope will be the starting point of a systematic study towards a theory of identities for noncommutative hypergeometric series and their q-analogues. (Received October 05, 2004)