1014-39-174   **Rupert Lasser*** (`lasser@gsf.de`), GSF-Research Center Neuherberg, Institute for Biomathematics, Ingolstaedter Landstr. 1, D-85764 Neuherberg, Germany. *Linear difference equations defined by polynomial hypergroups: Examples and basic properties.*

Orthogonal polynomial sequences with nonnegative linearization coefficients of their products determine a hypergroup structure on the nonnegative integers. In this way one gets a generalized shift on the integers. This shift yields a whole class of difference equations with nonconstant coefficients. In the present talk this class of difference equations is studied. It is shown how hypergroup theory can be used to develop solution methods. The asymptotic behavior of the solutions is also derived. Moreover concrete examples are studied. (Received August 09, 2005)