1077-33-714   **Nobuhiro Asai*** (`nasai@auecc.aichi-edu.ac.jp`), 1, Hirosawa, Igaya, Kariya, Aichi, 448-8542, Japan. *MRM triples associated with Brenke type generating functions.* Preliminary report.

In this talk, we will treat the following classical problem:

"Determine all possible orthogonal polynomials generated by Brenke type generating functions,

$$\psi(t,x) := B(t)h(tx) = \sum_{n=0}^{\infty} h_n P_n(x) t^n,\tag{1}$$

where functions $h(x)$ and $B(t)$ are analytic around the origin,

$$h(x) = \sum_{n=0}^{\infty} h_n x^n, \ B(t) = \sum_{n=0}^{\infty} b_n t^n$$

with $h_n \neq 0$ for $n \geq 0$ and $h(0) = B(0) = 1$ just for normalizations". Chihara ('68 '71) classified them essentially into four classes I–IV. However, explicit expressions of $\psi(t,x)$ for each class, that is, $B(t)$ and $h(t)$, were not obtained in his papers. Moreover, the associated Jacobi-Szegö parameters for Class IV were not given although several examples were mentioned briefly by a very vague explanation. In this talk, we will report that $B(t)$ and $h(t)$ for each class can be expressed by q-hypergeometric series and the Jacobi-Szegö parameters for Class IV coincide with those of discrete q-Hermite polynomials. The present results are based on the joint work with I.Kubo (Hiroshima, Japan) and H.-H. Kuo (LSU). (Received September 19, 2011)