962-17-992 **Bangming Deng** (dengbm@bnu.edu.cn), Department of Mathematics, Beijing Normal University, 100875 Beijing, Peoples Rep of China, and **Jie Xiao*** (jxiao@math.tsinghua.edu.cn), Department of Mathematical Sciences, Tsinghua University, Beijing 100084. *On double Ringel-Hall algebras.*

The talk consists of four parts (1) We verify that Ringel-Hall algebras belong to the class of quantum groups which provide solutions of quantum Yang-Baxter equation. It is also shown that there exist enough irreducible integrable highest weight modules on which the action of Θ^f provides solutions of quantum Yang-Baxter equation. We also show the complete irreduciblity and the well-known Kac-Weyl character formula. (2) We present an explicit formulation and a complete proof of a remarkable observation, by Sevenhant and Van den Bergh, that the double Ringel-Hall algebra of any finite-dimensional hereditary algebra is the quantized enveloping algebra of a generalized Kac-Moody algebra. (3) We prove that the Lusztig's symmetries satisfy the braid group relations over the whole double Ringel-Hall algebras. (4) We give a self-contained proof of the following weak form of Kac theorem: the set of dimension vectors of all indecomposable modules over Λ is just the positive root system of the corresponding Kac-Moody algebra. (Received September 30, 2000)