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Zongzhu Lin* (zlin@math.ksu.edu), Department of Mathematics, CW 138, Kansas State University, Manhattan, KS 66506. *Generalization of Lusztig's character formula.*

Lusztig constructed a formula for all irreducible representations of a reductive algebraic group G in characteristic p assuming that p is large enough so that the irreducible modules of the same p -restricted highest weights for the algebraic group and the corresponding quantum enveloping algebra at p -th root of unit are the same. Lusztig conjectured character formula in terms of Kazhdan-Lusztig polynomials has highest weights limited in the Jantzen region. In this talk, I will formulate a similar formula for a infinite families of highest weight modules of the algebraic group G in terms of the irreducible modules of the quantum group at p^r -th roots of unit. These infinite family of highest weight modules enjoy many interesting properties and provide an infinite family of bases of the character ring. They are expressed in terms of Kazhdan-Lusztig polynomials in terms of Frobenius morphisms on the character ring. (Received July 30, 2017)