1126-81-302 **Yaping Yang***, 710 N. Pleasant Street, LGRT 16th floor, Amherst, MA 01003, and **Gufang Zhao**, 710 N. Pleasant Street, LGRT 16th floor, Amherst, MA 01003. *From homotopy theory to representation theory.*

We use cohomology theories from topology to construct and study quantum groups and their representations. In my talk, I will focus on two examples.

1. We use the Morava K-theory to construct a family of new quantum groups parametrized by a prime number and a positive integer. Those quantum groups are related to Lusztig's 2015 reformulation of his conjecture from 1979 on character formulas for algebraic groups over a field of positive characteristic.

2. We use the equivariant elliptic cohomology to establish a sheafified elliptic quantum group for any symmetric Kac-Moody Lie algebra. The rational sections give the algebra of elliptic R-matrix. If time permits, I will explain the relation of the sheafified elliptic quantum group and Mirkovic's loop Grassmannian over an elliptic curve.

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