

BOSTON UNIVERSITY GEOMETRY SEMINAR

# Quantization of multiplicative quiver varieties

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Wednesday Feb. 9, 4-5 pm in MCS 149  
Tea 3:45-4 in MCS 153

**Abstract:** Quiver varieties parameterize certain representations of a quiver  $Q$ , and are constructed by a process called Hamiltonian reduction, which takes as input a symplectic variety with compatible group action, and yields a quotient, which is also symplectic.

In this talk I will define a certain algebra associated to a quiver  $Q$  and its dimension vector  $d$ , called the algebra of quantum differential operators on  $Mat_d(Q)$ . This algebra is a PBW deformation of the algebra of differential operators on the space of matrices associated with  $(Q, d)$ ; it is equivariant for a quantum general linear group acting by base change at the vertices, and we can construct its quantum Hamiltonian reduction by this action.

As examples of the output of this procedure, we obtain spherical double affine Hecke algebras of type  $A$  from so-called Calogero-Moser quiver, and spherical generalized double affine Hecke algebras from star-shaped quivers. When we send the parameter  $q \rightarrow 1$ , we recover well-known constructions of Gan and Ginzburg. On the other hand, for  $q \neq 1$ , and for simple quivers, we recover many well known examples of quantum coordinate algebras.