

1129-05-49

Justin Allman* (allman@usna.edu) and **Richard Rimanyi**. *Quantum dilogarithm identities for the square product of A-type Dynkin quivers*. Preliminary report.

The famous pentagon identity for quantum dilogarithms has a generalization for every Dynkin quiver, due to Reineke. A more advanced generalization is associated with a pair of alternating Dynkin quivers, due to Keller. The description and proof of Keller's identities involves cluster algebras and cluster categories, and the statement of the identity is implicit. In this talk we describe Keller's identities explicitly by a dimension counting argument. Namely, we consider the quiver representation space together with a superpotential function, and calculate the Betti numbers of the equivariant rapid decay cohomology algebra in two different ways corresponding to two natural stratifications. This approach is suggested by Kontsevich and Soibelman in relation with the Cohomological Hall Algebra of quivers, and the associated Donaldson–Thomas invariants. (Received February 17, 2017)