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Title: A mirror symmetric approach to Kostant's quantum Toda lattice

Abstract: Kostant's Toda and quantum Toda lattices attached to a semi-simple Lie group G are known by work of B. Kim to govern the quantum cohomology and quantum differential equations, respectively, in the A-model of the Langlands dual flag variety. We describe a 'mirror symmetric' (B-model) construction for these structures that is equally Lie theoretic and works in general type. Our Lie theoretic mirror family turns out to be the natural setting for the Peterson variety. It also gives rise to integral formulas for solutions to the quantum Toda lattice. Finally, we will touch on some connections with total positivity.