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Pramod N Achar* (pramod@math.lsu.edu), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803. *Green functions via hyperbolic localization*. Preliminary report.

Green functions are certain polynomials that arise in the character theory of finite groups of Lie type and (following Kriloff-Ram) are closely related to the representation theory of graded Hecke algebras. The key fact for calculations is that they satisfy a certain matrix equation. I will describe a new proof of this matrix equation using Braden's hyperbolic localization functor. This approach also leads to a description of the derived category of the nilpotent cone in terms of dg-modules over the coinvariant algebra of the Weyl group. (Received February 10, 2010)