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**Erica Shannon\*** ([erica.shannon@colorado.edu](mailto:erica.shannon@colorado.edu)), University of Colorado Boulder, Department of Mathematics, Campus Box 395, Boulder, CO 80309-0395. *Invariant Forms on Minuscule Representations*. Preliminary report.

A minuscule representation of a simple Lie algebra over the complex numbers is an irreducible representation for which the Weyl group acts transitively on the weights. Minuscule representations are often equipped with invariant multilinear forms that are invariant under the action of the Lie algebra. These include symplectic or orthogonal bilinear forms, as well as an invariant cubic form on a 27-dimensional representation in type  $E_6$ , and a symmetric invariant quartic form on the 56-dimensional representation in type  $E_7$ . I will discuss how the combinatorial structure of the weights of a minuscule representation can be used to gain insight into these forms. (Received September 21, 2015)