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Luca Moci* (lucamoci@hotmail.com), Via F. D'Ovidio, 34, 00137 Roma, RM, Italy. *Kostant's partition function and the topology of toric arrangements.*

Kostant's partition function counts in how many ways a vector can be written as a sum of positive roots. It plays an important role in representation theory, since it yields computation of weight multiplicities and Littlewood-Richardson coefficients. Its values can be computed by the residues method; geometrically this leads to associate to the root system a "toric arrangement". De Concini and Procesi have expressed the cohomology of the complement of this arrangement as a sum of contributions given by its "components". The Weyl group acts naturally on these components; I will show how this action can be described by the combinatorics of affine Dynkin diagrams. This allows to count the components of the arrangement, and then to compute explicitly the Poincare' polynomial of its complement. Finally I will show that the absolute value of the Euler characteristic is equal to the order of the Weyl group. (Received January 10, 2008)