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Alejandro H. Morales* (ahmorales@math.mit.edu), Department of Mathematics MIT, Building 2, Room 2-489, 77 Massachusetts Avenue, Cambridge, MA 02139-4307, and **Karola Mészáros**. *Flow polytopes and the Kostant partition function for signed graphs.*

Flow polytopes and the Kostant partition function are inherently related. This surprising connection has been studied with combinatorial methods by Postnikov and Stanley, and subsequently by Baldoni and Vergne using residue techniques. The combinatorial nature of flow polytopes and the Kostant partition function is showcased by the well-known Chan-Robbins-Yuen polytope, which is the flow polytope of the complete graph. Namely, an evaluation of the Kostant partition function is equal to the volume of this polytope, which in turn is the product of Catalan numbers by a theorem of Zeilberger. We use combinatorial techniques similar to those of Postnikov and Stanley to establish the relationship between volumes of flow polytopes associated to signed graphs and a variant of the Kostant partition function. We then study a generalization of the Chan-Robbins-Yuen polytope with the Kostant partition function in mind. (Received September 22, 2011)