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Carolina Benedetti, , Colombia, **Rafael González D'León**, , Colombia, and **Christopher R. H. Hanusa**, **Pamela E. Harris** and **Apoorva Khare**, , India, **Alejandro H. Morales***, Department of Mathematics and Statistics, Lederle Graduate Research Tower, UMass, Amherst, Amherst, MA 01002, and **Martha Yip**. *A combinatorial model for computing volumes of flow polytopes.*

Flow polytopes of a graph are an important family of polytopes whose lattice points and volumes are of interest in representation theory. Baldoni and Vergne; and Postnikov and Stanley gave remarkable positive sum formulas for their volumes, generalizing a result of Lidskii. We introduce new families of combinatorial objects that provide an interpretation to this formula and thus computes volumes of flow polytopes. We recover known flow polytope volume formulas and prove new volume formulas for flow polytopes. A highlight of our model is an elegant formula for the flow polytope of a graph we call the caracol graph (snail in Spanish). (Received September 25, 2018)