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Sarah K Mason* (sarahkmason@gmail.com), Winston Salem, NC 27106, and **Aaron Lauve**,
College Station, TX. *A basis for the coinvariant space for quasisymmetric polynomials.*

The coinvariant space for quasisymmetric polynomials is the quotient ring of quasisymmetric functions by symmetric functions. Garsia and Wallach used an algorithmic approach to prove that this ring has dimension $n!$, where n is the number of variables. In this joint work with Lauve, we affirm that the basis conjectured by Bergeron and Reutenauer is indeed a basis for this quotient ring, providing the first constructive proof of the Garsia-Wallach result. Our proof utilizes recent results (joint with Haglund, Luoto, and van Willigenburg) on the multiplication of quasisymmetric functions. (Received February 16, 2010)