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Chelsea Walton and **Sarah Witherspoon*** (sjw@math.tamu.edu). *Hopf actions and PBW deformations*. Preliminary report.

A Hopf algebra acting on another algebra gives rise to a smash product, that is, a larger ring encoding the action. In the special case of a group acting on a polynomial ring, deformations of smash product rings (also known as skew group algebras) include the graded Hecke algebras, symplectic reflection algebras, and rational Cherednik algebras that have arisen independently in many different fields. Replacing the group by a Lie algebra, quantum group, or other Hopf algebra, and polynomials by other Koszul algebras, one obtains analogs of these algebras. In this talk we will introduce these analogs and give some examples. (Received August 04, 2015)