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Classical Howe dualities provide a representation theoretical framework for classical invariant theory. It is known that $GL_n(\mathbb{C})$ is Howe dual to $GL_k(\mathbb{C})$ when both act on the polynomial ring in the variables $x_{i,j}$ where $1 \leq i \leq n$ and $1 \leq j \leq k$. In this talk, I will introduce the *multiset partition algebra*, MP_k as the Howe dual to the symmetric group S_n .

This is joint work with Mike Zabrocki (Received August 10, 2018)