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Mass. Ave., Cambridge, MA 02139-4307. *Mirkovic-Vilonen Polytopes*.

Mirkovic-Vilonen polytopes give a new model for the combinatorics of representations of complex reductive groups. These polytopes are the moment map images of the Mirkovic-Vilonen cycles, which are varieties arising from the geometric Satake Isomorphism. These polytopes also describe the combinatorics of Lusztig's canonical basis. We will introduce these polytopes and discuss recent work concerning the crystal structure on the set of MV polytopes. (Received September 07, 2005)