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Mirkovic–Vilonen polytopes

We will discuss the Mirkovic–Vilonen polytopes which 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. They also arise from the combinatorics of Lusztig's canonical basis. We will discuss new results concerning a crystal structure on the set of these polytopes.