

# Mirkovic-Vilonen cycles on the affine Grassmannian

Joel Kamnitzer  
Department of Mathematics  
MIT

## **Abstract**

The geometric Satake correspondence gives a relationship between the perverse sheaves on the affine Grassmannian and representation theory. We will explain this correspondence and how it leads to certain explicit varieties, called Mirkovic-Vilonen cycles, which parametrize bases for representations of reductive groups. We will then explain how these MV cycles can be described using combinatorial objects called MV polytopes.