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Lucas Mason-Brown* (lbrown@mit.edu). *Unipotent Representations Attached to Principal Nilpotent Orbits.*

The Orbit Method is a conjectural correspondence between co-adjoint orbits of a Lie group G and its irreducible unitary representations. When G is nilpotent or simply connected and solvable, this correspondence is perfect and complete. But when G is reductive, serious problems arise. The worst of these problems have to do with the nilpotent orbits of G . As of yet, there is no general method for attaching unitary representations to nilpotent orbits. In this talk, I will construct and classify all of the representations attached to the *principal* nilpotent orbits. The solution is a special case of the Langlands correspondence for real reductive groups and will give rise to a Blattner-type formula for the K -multiplicities of the representations in question. (Received August 28, 2019)