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William Graham* (wag@math.uga.edu). *Toric varieties and the principal nilpotent orbit.*

One of the most important constructions relating geometry to representation theory is the Springer resolution of the nilpotent cone \mathcal{N} in a semisimple Lie algebra. We construct an analogue of this resolution where \mathcal{N} is replaced by $\text{Spec } R$, where R is the ring of regular functions on the universal cover of the principal nilpotent orbit. As an application, we show that $\text{Spec } R$ is Gorenstein with rational singularities. We also generalize this construction to other nilpotent orbit covers. (Received February 04, 2008)