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William Crawley-Boevey, University of Leeds, **Pavel Etingof*** (etingof@math.mit.edu), Department of Mathematics, MIT, Cambridge, MA 02139, and **Victor Ginzburg**, University of Chicago. *Hochschild cohomology of preprojective algebras of quivers.*

Let Π be the preprojective algebra of a quiver, which is not of Dynkin or affine Dynkin type. We determine the Hochschild homology and cohomology of Π , and find the universal deformation of Π . In particular, we show that the Gerstenhaber algebra structure on $H^*(\Pi)$ is completely determined by the necklace Lie algebra structure on the space $L := H_0(\Pi) = \Pi/[\Pi, \Pi]$. We then compute the Hilbert series of L , using the theory of quiver varieties and matrix integrals. Finally, we show that the center of the Poisson algebra SL is the polynomial algebra in the vertex idempotents of the quiver. (Received July 15, 2005)