1014-53-1334 **Christopher Rae Lee*** (crlee@math.uiuc.edu), 273 Altgeld Hall, MC-382, 1409 W. Green Street, Urbana, IL 61801. *Toric Integrable Geodesic Flows.* Preliminary report.

The geodesic flow of a Riemannian manifold is said to be toric integrable if the first integrals of motion generate a homogeneous torus action on the punctured cotangent bundle preserving the standard symplectic form. When the geodesic flow is toric integrable, the cosphere bundle naturally has the structure of a contact toric manifold. A first step, then, in understanding topological obstructions to toric integrability is to compare the topology of cosphere bundles with that of contact toric manifolds. Surprisingly, the most basic of topological invariants, i.e. Betti numbers, have proved to be quite effective in this regard. In this talk, we will highlight the main results in this direction. This is joint work with Eugene Lerman and Sue Tolman. (Received September 27, 2005)