1033-37-247 **Yaroslav Vorobets*** (yvorobet@math.tamu.edu), Department of Mathematics, Texas A&M University, College Station, TX 77843-3368. *Stability of periodic billiard trajectories in polyhedra.*

A periodic billiard trajectory in a polyhedron is called stable if it survives an arbitrary small perturbation of the polyhedron. Any periodic billiard trajectory in a polyhedron can be isolated or else it is included into a family of periodic trajectories of the same length and combinatorial type. The family can be one-dimensional (a band) or two-dimensional (a beam).

We show that neither bands nor beams can survive small perturbations of a polyhedron. As a consequence, generic polyhedra can have only isolated periodic billiard trajectories. (Received September 12, 2007)