1033-37-199 **Gregory Galperin*** (ggalperin@eiu.edu), Eastern Illinois University, Department of Mathematics and Computer Sci., 600 Lincoln Ave., Charleston, IL 61920. *Traps in Polygonal Billiards.*

According to the result by Delman and Galperin, there is only a finitely many of non-equivalent billiard trajectories that do not enter any "epsilon-pocket" of a vertex of a billiard table, all such trajectories must be periodic, and, moreover, the number N of these periodic non-equivalent trajectories does not exceed the ratio of the area of the table to the area of the pocket up to a multiple factor smaller than 2.5.

Thus, if finitely many non-intersecting mirror reflecting segments are situated on the plane in a very special way (forming sides of a polygon under an appropriate extensions of the segments), each billiard trajectory on the plane is either trapped by these segments and hence is periodic, or escapes from this set of mirrors to infinity after finitely many reflections from the segments. The natural conjecture posed by the speaker many years ago is whether this true for arbitrary scattered non intersecting mirror segments on the plane, or not? The speaker resolves the conjecture negatively by constructing a special types of traps in which a bundle of parallel billiard rays is split into three types: periodic orbits, trapped non-periodic orbits, and escaped orbits. (Received September 10, 2007)