1147-37-109   **Sean Gasiorek*** (`sgasiore@ucsc.edu`). *On the Dynamics of Inverse Magnetic Billiards.* Preliminary report.

Consider a strictly convex set Ω in the plane, and a homogeneous, stationary magnetic field orthogonal to the plane whose strength is B on the complement of Ω and 0 inside Ω. The trajectories of the particle are straight lines concatenated with arcs of circles of Larmor radius μ. We examine the dynamics of such a particle and call this system *inverse magnetic billiards*. If the boundary is sufficiently smooth and μ is smaller than the minimum radius of curvature of the boundary we show that the resulting map is a twist map, with all the consequences regarding periodic orbits, etc. ensuing. Other comparisons to known standard billiard results will be made. (Received December 19, 2018)