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The Koch snowflake fractal curve KS may be described as an inverse limit of prefractal approximations KS_n . Such a curve is non-differentiable and reflection in KS is not well defined. In light of the fact that KS can be described as an inverse limit, we describe orbits of the Koch snowflake fractal billiard $\Omega(KS)$ as inverse limits of particular inverse limit sequences of periodic orbits of the Koch snowflake prefractal billiards $\Omega(KS_n)$.

In addition, we extend the inverse limit construction of periodic orbits to other fractal billiards. In particular, we show that our results on $\Omega(KS)$ generalize to other billiard tables that may be described by particular iterated function systems.

We provide a formula for the lengths of particular families of periodic orbits of the fractal billiards discussed and show how, in the case of the Koch snowflake fractal billiard, that such a formula is intimately tied to the initial basepoint of an orbit of the equilateral triangle billiard $\Omega(KS_0)$.

We finish this talk by detailing conjectures on the existence of what we have termed ‘fractal flat surfaces’ and the relationship between the billiard flow and geodesic flow (both yet to be determined and fully defined). (Received September 22, 2010)