1033-37-67   **W Patrick Hooper*** (`wphooper@math.northwestern.edu`), Department of Mathematics, Northwestern University, 2033 Sheridan Road, Evanston, IL 60208-2730. *Dynamics on an infinite surface with the lattice property.* Preliminary report.

We obtain an infinite area translation surface structure on an infinite genus surface by applying a limiting process to compact translation surfaces built by Veech using regular polygons. Our infinite surface has the lattice property, which prompts a question. What can be said about the various dynamical systems acting on the surface?

We will pay special attention to actions of hyperbolic elements H of the affine automorphism group. We prove that the action of H is non-recurrent. Nonetheless, H in a sense equidistributes cylinders relative to other cylinders. We will prove that there is a positive constant k dependent only on H such that for any two cylinders A and B,

$$\lim_{n \to \infty} n^{3/2} Area(H^n(A) \cap B) = k\, Area(A)\, Area(B).$$

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