

# Strongly Mixing Translation Flows

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# Infinite Type Translation Surfaces

- My interest is to investigate translation flows in translation surfaces of finite area and infinite genus.
- One way of constructing such objects is via considering a suspension on an *infinite interval exchange transformations* (a cutting stacking sequence transformation).

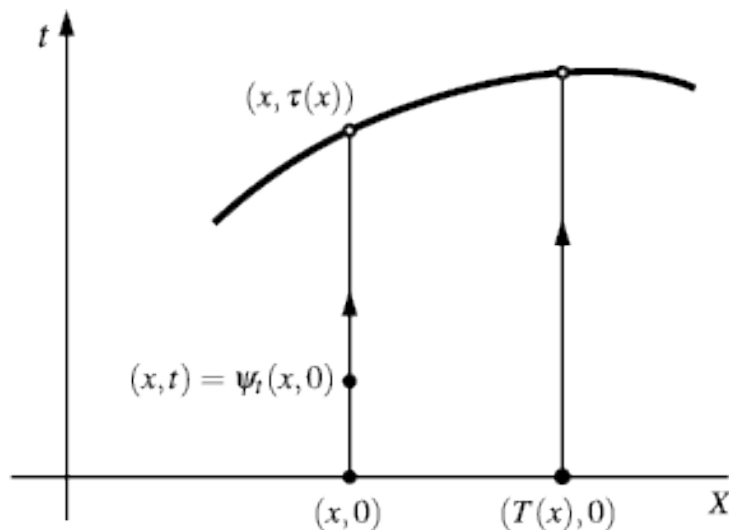


Figure 1: Suspension flow

# What Type of Questions can we ask?

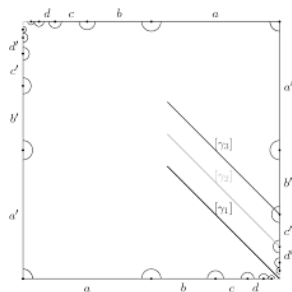


Figure 2: Chamanara surface

## Definition

A flow  $\phi_t$  on  $X$  is mixing if for every two  $\mu$ -measurable sets  $A, B$

$$\mu(\phi_t(A) \cap B) \rightarrow \mu(A)\mu(B).$$

## Theorem

(Katok '80). Any suspension flow over an interval exchange transformation, with a roof function of bounded variation is never strongly mixing.

## Theorem

*(Lindsey, Trevino 2014). Every aperiodic ergodic flow in a probability space with finite entropy is isomorphic to a suspension flow over a cutting stacking sequence transformation under a roof function which is 2-wise constant and their heights are rationally independent.*

## Conjecture

*(Lindsey, Trevino 2014). If  $T$  is a mixing staircase transformation, then the suspension flow over  $T$  under a roof function which is 2-wise constant with heights rationally independent is strongly mixing.*

## Question

*Is it possible to give a reasonably good condition for a surface  $S$  such that the vertical flow is strongly mixing?*