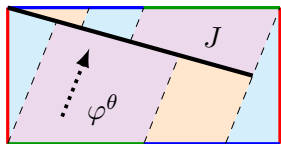# Linear flow on $\mathbb{Z}^m$ - covers of translation surfaces

Yuriy Tumarkin (University of Zurich)
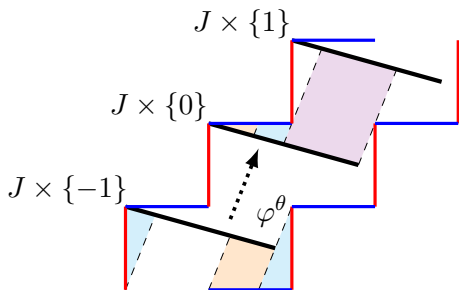
Le Teich, 4th March 2024

Example: the infinite staircase
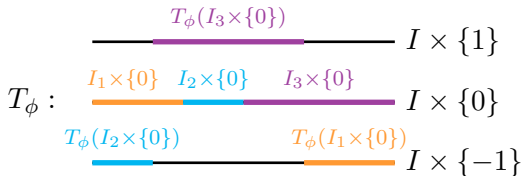
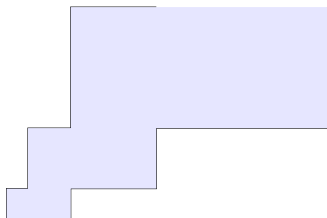**Genus 1 surface S**

$\mathbb{Z}$ - cover $\tilde{S}$

$J \times \{1\}$

$J \times \{0\}$

$J \times \{-1\}$

φ^θ

Poincaré section: IET

$T:$

$I_1 \quad I_2 \quad I_3$

$T(I_2) \quad T(I_3) \quad T(I_1)$

Poincaré section: skew-product

$T_\phi:$

$T_\phi(I_3 \times \{0\})$ — $I \times \{1\}$

$I_1 \times \{0\} \quad I_2 \times \{0\} \quad I_3 \times \{0\}$ — $I \times \{0\}$

$T_\phi(I_2 \times \{0\}) \quad T_\phi(I_1 \times \{0\})$ — $I \times \{-1\}$

Ergodic measures

Definition

Maharam measures: measures which rescale under the Deck group action.

Theorem (T. '23)

For a skew-product T_ϕ that is periodic under Rauzy-Veech renormalisation, the ergodic invariant measures are precisely the Maharam measures.