

Dynamics on Panov planes and applications

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Recently several rigorous results on the periodic wind-tree model have been shown using methods provided by Teichmüller Theory. Those methods apply to other infinite (half-)translation surfaces. In this presentation we use some of those methods to study direction foliations on Panov planes and closely related dynamical systems. A Panov plane is the universal cover of a half-translation torus. We describe the relation of the periodic wind-tree model to certain Panov planes and state the central result on the dynamics on Panov planes. We also discuss an application of Panov dynamics to retro-reflector systems (with Krzysztof Frączek).

Major parts of the presentation cover ongoing research with my graduate student Chris Johnson.