Nondegenerate fixed points and mixing in flows on a two-dimensional torus.
(Russian. Russian summary)


Assume that $f$ is a real, positive, bounded away from zero, integrable function defined on the circle $\mathbf{T} = [0, 1)$ (modulo 1). Assume moreover that such a function has finitely many singularities $x_1, \ldots, x_k$, all of logarithmic type. We call $f$ asymmetric if:

- $f \in C^1(\mathbf{T} \setminus \{x_1, \ldots, x_k\})$,
- $f'(x) = -\frac{1}{(x-x_i)}(A_i + o(1)), \ x \to x_i^+$,

where $A_i, B_i > 0$, $i = 1, \ldots, k$.

The main result of the paper states that under the above assumptions on $f$ and $\alpha$, the special flow built from the irrational rotation by $\alpha$ and the ceiling function $f(\cdot)$ is mixing. This is an essential strengthening of a result by Y. G. Sina˘ı and K. M. Khanin [Functsional. Anal. i Prilozhen. 26 (1992), no. 3, 1–21; MR0062892]. See also A. V. Kochergin [Mat. Sb. 193 (1996), no. 7-8, 194], and B. R. Fayad [Ergodic Theory Dynam. Systems 22 (2002), no. 2, 437–468; MR1898799].

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Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.

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