Centralizer and liftable centralizer of special flows over rotations. (English summary)

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The centralizer of a measurable flow is the set of automorphisms of the underlying space commuting with all the elements of the flow. The centralizer is called trivial if it consists only of the flow itself, and in all cases the flow itself is a normal subgroup of the centralizer. The quotient group is the essential centralizer. For a rigid flow the essential centralizer is known to be uncountable. In the paper under review, using a description of the flow as a special flow under a function, the authors define a special subgroup of ‘liftable’ maps in the centralizer. Their main results are concerned with special flows built over irrational rotations. They find examples to show that there are flows of this sort under piecewise constant roof functions which are rigid but for which the liftable centralizer is trivial. The constructions involve delicate considerations of Diophantine properties of the rotation.

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References

11. Freczek K and Lemanczyk M 2004 A class of special flows over irrational rotations which is disjoint from mixing flows Ergod. Theory Dynam. Syst. 24 1083–95 MR2085391
26. Koergin A V 1975 Mixing in special flows over a rearrangement of segments and in smooth flows on surfaces *Mat. USSR Sb.* 25 471–502 MR0516507
33. Lemaczyk M and Parreau F Special flows over irrational rotations with the simple convolutions property (www-users.mat.unk.pl/~mlem/publications.php)
44. Veech W A 1969 Strict ergodicity in zero dimensional dynamical systems and the Kronecker–Weyl theorem modulo 2 *Trans. AMS* **140** 1–33 MR0240056

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