

Some remarks on the Markus-Neumann theorem

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A well-known result by L. Markus [2], later extended by D. A. Neumann [3], states that two continuous flows on a surface are equivalent if and only if there is a surface homeomorphism preserving orbits and time directions of their separatrix configurations.

In [1], we present several examples showing that, as originally formulated, the Markus-Neumann theorem needs not work. Besides, we point out the gap in its proof and show how to restate it in a correct (and slightly more general) way. During this talk we will discuss some of the details of this work.

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References

- [1] J. G. Espín Buendía and V. Jiménez López, *On the Markus-Neumann theorem*, preprint, Universidad de Murcia, 2017. <https://arxiv.org/abs/1707.05504>
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- [3] D. A. Neumann, *Classification of continuous flows on 2-manifolds*, *Proc. Amer. Math. Soc.* **48** (1975), 73–81.