

# Almost all Reeb vector fields admit a Birkhoff section

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A Birkhoff section reduces the study of a non-singular flow in 3D to that of a surface diffeomorphism and provides a rational open book carrying the flow. I will present a recent existence statement for Birkhoff sections: the set of a Reeb vector fields on closed 3-manifolds that admit a Birkhoff section contains an open and dense subset in the  $C^\infty$  topology. This construction is based on the existence of broken book decompositions and is part of a joint work with Vincent Colin, Pierre Dehornoy and Umberto Hryniewicz.

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