

Quantitative refinements of various conjectures in 3D Reeb dynamics, and some results

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The Weinstein conjecture asserts that every Reeb flow on a closed manifold has a periodic orbit; this is a strong statement about the collection of all Reeb flows, but one might argue that one does not learn much about a given Reeb flow from knowing that it has one periodic orbit. Similarly, it has been conjectured that Reeb flows on connected closed 3-manifolds always have two or infinitely many periodic orbits; again, this is a strong statement about the collection of all Reeb flows in 3D, but one might argue that one does not learn much about the structure of a given Reeb flow from knowing that it has infinitely many periodic orbits. The goal of this talk is to propose quantitative refinements of these conjectures, and to present some results. This talk is based on joint work with Le Calvez, and also on joint work with Cristofaro-Gardiner, Hutchings and Liu.