Foliations, Flows and Contact Structures

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Taut foliations, volume preserving flows, and tight contact structures are important topological structures on 3-manifolds. We will define these structures and describe some of the ways in which they are important. In particular, we will discuss these structures in the context of the following result of Eliashberg and Thurston: every sufficiently smooth taut foliation can be perturbed to a pair of tight contact structures, one positive and one negative. In joint work with Will Kazez, we show that the smoothness assumptions on the foliation can be modified. This allows the approximation theorem to be applied to a wide range of recent constructions of (non-smooth) continuous foliations.