

A global Weinstein splitting theorem for holomorphic Poisson manifolds

Brent Pym¹

¹ McGill University

A fundamental fact about Poisson brackets, known as Weinstein’s splitting theorem, states that every Poisson manifold can be decomposed locally as the product of a symplectic manifold and a Poisson manifold whose Poisson bracket vanishes at a point. A key consequence is that every Poisson manifold admits a canonical (singular) foliation with symplectic leaves. After giving an overview of these ideas, I will describe a global analogue of the splitting theorem, in the context of holomorphic Poisson structures. Namely, if a compact Kähler Poisson manifold has a compact symplectic leaf with finite fundamental group, then after passing to a finite étale cover, it decomposes globally as the product of the universal cover of the leaf and some other Poisson manifold. This talk is based on joint work with S. Druel, J. V. Pereira and F. Touzet, and relies on a new notion of “subcalibrations” in Poisson geometry due to P. Frejlich and I. Mărcuț.