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Anosov flows and non-Stein symplectic manifolds. (English) Zbl 0834.53031

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Summary: We simplify and generalize McDuff's construction of symplectic 4- manifolds with disconnected boundary of contact type in terms of the linking pairing defined on the dual of 3-dimensional Lie algebras. This leads us to an observation that an Anosov flow gives rise to a bi-contact structure, i.e. a transverse pair of contact structures with different orientations, and the construction turns out to work for 3-manifolds which admit Anosov flows with smooth invariant volume. Finally, new examples of bi-contact structures are given and related dynamical problems around bi-contact structures are raised.

MSC:

53C15 General geometric structures on manifolds (almost complex, almost product structures, etc.)
37D99 Dynamical systems with hyperbolic behavior
37J99 Dynamical aspects of finite-dimensional Hamiltonian and Lagrangian systems

Keywords:

Anosov flows; contact structures; convex symplectic structures

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