

Topological structures related to symplectic and contact manifolds

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I will review results on the problem: what restrictions on topology of a manifold are implied by the existence of symplectic or contact structures? Several constructions related to questions of this type will be also discussed.

1. Tangent structures and homology: almost complex and almost contact manifolds.
2. Open versus closed manifolds.
3. The use of the Reeb vector field: the case of K-contact and Sasakian forms.
4. Fiber bundle constructions: Thurston's theorem, fat bundles and products.
5. Some low dimensional examples: contact, K-contact and Sasakian forms on simply connected 5-manifolds.