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COISOTROPIC SUBMANIFOLDS, LEAF-WISE FIXED POINTS, AND PRESYMPLECTIC EMBEDDINGS

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Let (M,ω) be a geometrically bounded symplectic manifold, $N \subseteq M$ a closed, regular (i.e., "fibering") coisotropic submanifold, and $\varphi : M \to M$ a Hamiltonian diffeomorphism. The main result of this article is that the number of leaf-wise fixed points of φ is bounded below by the sum of the $\mathbb{Z}_2$-Betti numbers of N, provided that the Hofer distance between φ and the identity is small enough and the pair (N,φ) is non-degenerate. The bound is optimal if there exists a $\mathbb{Z}_2$-perfect Morse function on N. A version of the Arnol'd–Givental conjecture for coisotropic submanifolds is also discussed. As an application, I prove a presymplectic non-embedding result.

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