

Pseudo-rotations of Complex Projective Spaces

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In this talk we consider generalizations of pseudo-rotations of the two-sphere to projective spaces — these are the Hamiltonian diffeomorphisms of complex projective spaces with exactly $n+1$ periodic orbits, where n is the complex dimension of the space. We show that several results about pseudo-rotations in dimension two (e.g., the existence of invariant sets theorem of Le Calvez and Yoccoz and the “rigidity” of pseudo-rotations by Bramham) extend to higher dimensions. Furthermore, every pseudo-rotation has a matching rotation, at least in dimension four, which is essentially indistinguishable from the pseudo-rotation as far the invariants of their periodic orbits are concerned.