

Geometry, Topology and Dynamics Seminar

Hamiltonian monodromy: an overview and new perspectives

Konstantinos Efstathiou (University of Groningen)

Abstract: Torus bundles are one of the most prominent features of integrable Hamiltonian systems. The monodromy of such torus bundles over circles is called Hamiltonian monodromy. In this talk I will give an overview of Hamiltonian monodromy and discuss the development of the subject. I will also present the "geometric monodromy theorem" which associates monodromy to the focus-focus singular points of the Hamiltonian system.

Then I will consider the case of n -DOF (degree of freedom) integrable Hamiltonian systems with global \mathbb{T}^{n-1} actions and discuss recent results obtained for such systems together with N. Martynchuk. In particular, we have shown that monodromy in such systems is associated to points where the isotropy is an \mathbb{S}^1 subgroup of the \mathbb{T}^{n-1} action. In the special case of 2-DOF systems with an \mathbb{S}^1 action this result implies that monodromy is associated to the fixed points of the action. Finally we give a general and easy to apply formula for computing monodromy in n -DOF systems.

Monday, October 26 at 3:00 PM in SEO 636
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