

***Fractional monodromy in integrable Hamiltonian systems  
with reverse hyperbolic singularities***

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Standard monodromy of integrable Hamiltonian systems was introduced by Duistermaat as the obstruction to the existence of global smooth action coordinates in integrable Hamiltonian systems. A generalization of standard monodromy, called fractional monodromy, was introduced by Nekhoroshev, Sadovskii and Zhilinskii in the specific example of an  $1:(-2)$  resonant integrable Hamiltonian system. The basic idea behind fractional monodromy is to consider the global geometry of the invariant sets of the integrable Hamiltonian system including singular non-toric fibres. In this talk we show that any two degree of freedom Hamiltonian system with a global circle action whose singular fibres satisfy certain general conditions has fractional monodromy. Furthermore, we show how the fractional monodromy can be computed by the variation of the rotation number along a closed path.