

## Integrability of linear non autonomous hamiltonians through differential Galois theory

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In this talk we introduce a notion of integrability for Hamiltonian systems in the non autonomous sense. For the cases of  $1+1/2$  degrees of freedom and quadratic homogeneous Hamiltonians of  $2+1/2$  degrees of freedom we prove that this notion is equivalent to the classical complete integrability of the system in the extended phase space. For the case of quadratic homogeneous Hamiltonians of  $2+1/2$  degrees of freedom we also give a reciprocal of the Morales-Ramis result. We classify those systems by terms of symplectic change of frames involving algebraic functions of time, and give their canonical forms.

(Joint work with S. Carrilo, U. Nacional de Colombia)