

Persistence of first integrals for integrable  
deformations of fibrations: a generalization of  
Ilyashenko's result

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This is based in a joint-work with Dominique Cerveau.

**Abstract**

We study analytic deformations of holomorphic differential 1-forms. The initial 1-form is exact homogeneous and the deformation is by polynomial integrable 1-forms. We investigate under which conditions the elements of the deformation are still exact or, more generally, exhibit a first integral. Our results are related to natural extensions of classical results of Ilyashenko on limit cycles of perturbations of hamiltonian systems in two complex variables.