

Workshop on Singularities, Hamiltonian and gradient flows
Atelier sur les singularités, flots hamiltoniens et gradients
12–16 May/Mai, 2008

The space of modules of unfoldings of germs of generic diffeomorphisms with a parabolic point

Christiane ROUSSEAU
Département de Mathématiques et de Statistique
Université de Montréal
C.P. 6128, Succ. Centre-ville
Montréal (Québec), H3C 3J7
CANADA

`rousseac@dms.umontreal.ca`

Abstract

In this *joint work with Colin Christopher* we identify the space of modules of unfoldings of germs of generic diffeomorphisms with a parabolic point. The former paper “Modulus of analytic classification for unfoldings of generic parabolic diffeomorphisms” by P. Mardesic, R. Roussarie and myself, published in 2004 in the Moscow Mathematical presented a complete modulus of analytic classification for germs of generic 1-parameter families of vector fields unfolding a germ of diffeomorphism with a parabolic fixed point. The modulus was given by an unfolding of the Ecalle–Voronin modulus, but its precise dependence on the parameter was still an open problem. We show that the modulus is 1-summable in the square root of the canonical parameter and we exhibit the compatibility condition so that a given candidate for a modulus is indeed the modulus of a germ of family of generic diffeomorphisms unfolding a parabolic point. We also study the dependence of the modulus on additional parameters. We explain the applications to the study of unfoldings of saddle-nodes or resonant saddles of 2-dimensional vector fields.