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<u>ABSTRACTS OF THE CONFERENCES</u>

F. CANO. T. Local and Global results on the desingularization of three-dimensional vector fields.

We present some local and global results concerning the desingularization of vector fields by means of blowing-ups of the ambient space (supposed of dimension three). The local reduction has been made in an earlier work and here we present with complete proofs the globalization of the local algorithm for a special kind of vector fields : those which have a "true" strict tangent space or directrix.

F. DIENER. Rivers and central manifolds.

Rivers at infinity for plane vector fields are particular non bounded trajectories along which all near solutions are accumulating. We show here that these rivers can be seen, through a good compactification, as central manifolds of the singular point at infinity. From this we deduce a remarkable property of these rivers : the p-sommability of asymptotic expansion which represent them.

J. ECALLE. Local hamiltonian fields : analytic classification, holomorphic invariants and "alien hamiltonians".

After recalling some basic facts about local analytic objects (viz. local vector fields or diffeomorphisms) and their holomorphic invariants, we sketch a constructive method, which rests on the theory of resurgent functions and yields all such holomorphic invariants. We then apply the method to local hamiltonian fields with "estrinsical" resonance (barring which there are non holomorphic invariants). The remarkable feature here is that the holomorphic invariants are derived from a potential, the so-called "alien hamiltonian", which we explicitely calculate.

J.P. FRANCOISE. Monodromy and the Kowalevskaya top.

We consider algebraically completely integrable Hamiltonian systems which are separable. For these systems, we prove that the symplectic form can be reduced to a simple expression involving Abelian forms. We use then Arnold's method to define the Actions. The determination of the Actions turns out to be equivalent to a monodromy computation. The Actions are not given, in general, by simple functions of the first integrals. But we can write the corresponding Picard-Fuchs equations. We consider in detail the Kowalevskaya top and we write down the 4-th order differential equation which is involved in this case.

X. GOMEZ-MONT. Universal Families of Foliations by Curves.

We give a geometric definition of a foliation by holomorphic curves, and derive from it an analytic definition. Using A. Douady's parametrization of quotient sheaves and the analytic definition, we show that the set of foliations by curves in a compact manifold M has a natural structure of a complex analytic space. We show that if M is a projective manifold, then the connected components of this space are compact ; and using the Hirzebruch-Riemann-Roch formula we determine the dimension of many components.

AMS classification : 58F18, 32G10, 14C05.

J. MARTINET. Remarks about saddle-node bifurcation in the complex domain.

We give a geometrical interpretation of Ecalle's analytic invariants for a local diffeomorphism of $\mathbb{C}$ at 0, tangent to the identity mapping , by studying the global dynamics of infinitely close hyperbolic diffeomorphisms.

R. ROUSSARIE. Generic deformations of cusps.

A cusp is a germ of 1-form at $0 \in \mathbb{R}^2$, whose 2-jet is equivalent to $ydy-x^2dx+\beta xydy$ for some $\beta \in \mathbb{R}$. First, one defines a filtration of the space V_o of all 1-form germs ω at $0 \in \mathbb{R}^2$ (with $\omega(0)=0$), by codimension k submanifolds : $V_o \supset \Sigma_c^2 \supset \ldots \supset \Sigma_c^k \supset \ldots$, where Σ_c^2 is the set of all cusps, and

$\Sigma_c^k=\{\omega \mid j^{L(k)}\omega(0)\sim ydy-x^2dx\}$ for $k\geq 3$ and $L(k)=\left[\frac{3k}{2}\right]-2$. Next, one proves that any k-parameter deformation of a cusp (i.e. : any germ of k-parameter family of 1-forms, ω_λ , with $\lambda \in \mathbb{R}^k$, at $(0,0)\in\mathbb{R}^2\times\mathbb{R}^k$ such that $(\omega_o,0)\in\Sigma_c^2$), transversal to the Σ_c^k-filtration has locally at most $\left[\frac{3k}{2}\right]$ limit cycles (i.e. : there exist neighborhoods A of $0\in\mathbb{R}^2$, B of $0\in\mathbb{R}^k$ and a representative family ω_λ of the deformation, defined for $(x,\lambda)\in A\times B$, such that for each $\lambda\in B$, the form ω_λ has at most $\left[\frac{3k}{2}\right]$ isolated closed cycles in A).