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Nota di contenuto	1 Adolfo Guillot, On the singularities of complete holomorphic vector fields in dimension two -- 2 Julio Rebelo and Helena Reis, Singularities of holomorphic vector fields in dimensions 3: results and problems -- 3 Alcides Lins Neto, Codimension one holomorphic Foliations -- 4 Maurcio Correa, Analytic varieties invariant by holomorphic foliations and Pfaff systems -- 5 Felipe Cano and Beatriz Molina-Samper, Local Invariant Hypersurfaces for Singular Foliations -- 6 Isao Nakai, From

the perspective of nonsolvable dynamics on $(C, 0)$: Basics and Applications -- 7 Javier Ribon, Description of the Zariski-closure of a group of formal diffeomorphisms -- 8 Frank Loray, The Riemann-Hilbert correspondence for rank 2 meromorphic connections on curves -- 9 Emmanuel Paul, Jean-Pierre Ramis, Dynamics of the fifth Painlevé foliation -- 10 Jean-Pierre Ramis, Epilogue: Stokes phenomena. Dynamics, Classification Problems and Avatars.

Sommario/riassunto

This is the sixth volume of the Handbook of Geometry and Topology of Singularities, a series which aims to provide an accessible account of the state-of-the-art of the subject, its frontiers, and its interactions with other areas of research. Singularities are ubiquitous in mathematics and science in general, and singularity theory is a crucible where different types of mathematical problems converge, surprising connections are born and simple questions lead to ideas which resonate in other parts of the subject, and in other subjects. This Volume VI goes together with Volume V and focuses on singular holomorphic foliations, which is a multidisciplinary field and a whole area of mathematics in itself. Singular foliations arise, for instance, by considering: The fibers of a smooth map between differentiable manifolds, with singularities at the critical points. The integral lines of a vector field, or the action of a Lie group on a manifold. The singularities are the orbits with special isotropy. The kernel of appropriate 1-forms. The singularities are the zeroes of the form. Open books, which naturally appear in singularity theory, are foliations with singular set the binding. These important examples highlight the deep connections between foliations and singularity theory. This volume consists of nine chapters, authored by world experts, which provide in-depth and reader-friendly introductions to some of the foundational aspects of the theory. These introductions also give insights into important lines of further research. Volume VI ends with an Epilogue by one of the current world leaders in the theory of complex foliations, with plenty of open questions and ideas for further research. The book is addressed to graduate students and newcomers to the theory, as well as to specialists who can use it as a guidebook.
