

# SINGULARITIES SYMPOSIUM — ŁOJASIEWICZ 70

*Editors of the Volume*

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## PREFACE

The present volume of the Banach Center Publications is dedicated to Stanisław Łojasiewicz on the occasion of his 70th birthday. It contains 26 papers concerning a wide spectrum of up-to-date topics of singularity theory; in particular, algebraic, semialgebraic, semianalytic and subanalytic geometry, o-minimal structures and singularities of differential equations.

The papers were written by the participants of two symposia which were held in Cracow and in Warsaw. The first was the *Symposium on Singularities, on the Occasion of the 70th Birthday of Stanisław Łojasiewicz*, held from 25 to 29 September 1996 at the Jagiellonian University, Cracow (Scientific Committee: Bernard Malgrange, Czesław Olech, Józef Siciak, René Thom and Jean-Claude Tougeron; Organizing Committee: Marek Jarnicki, Wiesław Pawłucki and Jacek Stasica). The symposium was continued during the *Seminar on Singularities and Geometry*, held from 30 September to 4 October 1996 at the Banach Center, Warsaw (Organizing Committee: Bronisław Jakubczyk, Stanisław Janeczko, Wiesław Pawłucki and Jacek Stasica). The full lists of lectures presented at both conferences are given on pp. 7–8.

The articles in the present volume are either original papers or extended versions of lectures delivered during the two symposia.

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*Bronisław Jakubczyk, Wiesław Pawłucki and Jacek Stasica*

## CONTENTS

List of lectures .....	9–10
F. ACQUISTAPACE, C. ANDRADAS and F. BROGLIA, Semialgebraicity of certain local loci .....	11–20
J. BOCHNAK and W. KUCHARZ, On homology classes represented by real algebraic varieties .....	21–35
L. BRÖCKER, On symmetric semialgebraic sets and orbit spaces .....	37–50
F. CANO, Reduction of the singularities of foliations and applications .....	51–71
J. CHĄDZYŃSKI and T. KRASIŃSKI, On the Lojasiewicz exponent for analytic curves .....	73–80
M. COSTE, Topological types of fewnomials .....	81–92
S. CYNK and T. SZEMBERG, Double covers and Calabi-Yau varieties .....	93–101
J.-P. FRANÇOISE and Y. YOMDIN, Projection of analytic sets and Bernstein inequalities .....	103–108
A. GABRIELOV, F. JEAN and J.-J. RISLER, Multiplicity of polynomials on trajectories of polynomial vector fields in $\mathbf{C}^3$ .....	109–121
J. GWOŹDZIEWICZ, Growth at infinity of a polynomial with a compact zero set .....	123–128
P. JAWORSKI, On blowing up versal discriminants .....	129–140
M. KNEBUSCH, Manis valuations and Prüfer extensions .....	141–146
M. KNEBUSCH, On valuation spectra .....	147–148
A. LENARCIAK, On the Lojasiewicz exponent of the gradient of a holomorphic function .....	149–166
J.-M. LION et J.-P. ROLIN, Frontière d'une hypersurface pfaffienne et géométrie sous-analytique .....	167–172
B. MALGRANGE, On sectorial solutions of ordinary differential equations .....	173–174
A. PARUSIŃSKI and Z. SZAFRANIEC, On the Euler characteristic of fibres of real polynomial maps .....	175–182
W. PAWLUCKI, Examples of functions $\mathcal{C}^k$ -extendable for each $k$ finite, but not $\mathcal{C}^\infty$ -extendable .....	183–187
A. PIĘKOSZ, On semialgebraic points of definable sets .....	189–193
F. RONGA, Felix Klein's paper on real flexes vindicated .....	195–210
H. J. SUSSMANN, Some optimal control applications of real-analytic stratifications and desingularization .....	211–232
V. THILLIEZ, Division et extension dans des classes de Carleman de fonctions holomorphes .....	233–246
A. WEBER, Leray residue for singular varieties .....	247–256
S. YOKURA, A singular Riemann-Roch for Hirzebruch characteristics .....	257–268
M. ZHITOMIRSKII and W. RESPONDEK, Simple germs of corank one affine distributions .....	269–276
M.-A. ZURRO, On the rings of formal solutions of polynomial differential equations ..	277–292

## LIST OF LECTURES

Lectures presented  
at the Symposium on Singularities  
on the Occasion of the 70th Birthday of Stanisław Łojasiewicz  
Cracow, September 25–29, 1996

- S. S. Abhyankar: *Fundamental groups of algebraic varieties*
- J. M. Aroca: *Asymptotic development of functions in several variables*
- E. Becker: *The real holomorphy ring of a ring*
- J.-P. Brasselet: *About the relative de Rham theorem* (a joint work with B. Teissier)
- L. Bröcker: *On symmetric semialgebraic sets and orbit spaces*
- F. Cano: *Reduction of singularities of foliations and applications*
- G. Choquet: *Polish and French mathematics 50 years ago; a personal testimony*
- M. Coste: *Finiteness results in o-minimal structure*
- M. Ferrarotti: *Geodesic distance on stratified spaces*
- J.-P. Francoise: *Projection of analytic sets on polydiscs and Bernstein inequality*
- M. Knebusch: *Manis valuations and Prüfer extensions*
- K. Kurdyka: *The gradient conjecture of René Thom* (a joint work with T. Mostowski)
- M. Lejeune-Jalabert: *Arcs and wedges on a sandwiched surface singularity*
- V. Sharko: *On obstructions for topological equivalence of vector fields and functions on manifolds*
- H. J. Sussmann: *Optimal control applications of real analytic stratifications and desingularization*
- B. Teissier: *On the Łojasiewicz exponents*
- A. Wilkie: *A theorem of the complement for sets defined globally by smooth functions*
- M.-A. Zurro: *Gevrey rings*

**Lectures presented  
at the Seminar on Singularities and Geometry  
Warsaw, September 30–October 4, 1996**

- S. S. Abhyankar: *Polynomial expansion*
- A. Agrachev: *Exponential mappings in sub-Riemannian geometry*
- F. Apéry: *Pentagonal structure of the configuration space of five points in the real line*
- J.-P. Brasselet: *On a characterization of Gorenstein toric singularities*
- J.-P. Francoise: *Singularity theory and planar vector fields*
- B. Jakubczyk and M. Zhitomirskii: *Singularities of Pfaff equations*
- Z. Jelonek: *Testing sets for properness of polynomial mappings*
- M. Knebusch: *On valuation spectra*
- M. Kwieciński: *Finite sets in fibers of analytic maps*
- J.-M. Lion: *Theorems of Wilkie, van den Dries, Marker and Macintyre without Model Theory*
- P. Mormul: *Controllability by abnormal curves of a generic rank-3 distribution on a 5-manifold and its Cartan module*
- T. Mostowski: *The instability problem in classical mechanics*
- A. Parusiński: *Algebraically constructible functions and local topological properties of real algebraic sets*
- F. Pelletier: *Geometric properties of some 2-step sub-Riemannian manifolds*
- W. Respondek: *Feedback classification of nonlinear control systems: simple normal forms*
- K. Spallek: *Differential geometry on differentiable spaces and quotient spaces*
- E. Strużyna and H. Żołądek: *Analytic normal form of Bogdanov-Takens singularity*
- H. J. Sussmann: *An introduction to subanalyticity properties of sub-Riemannian balls and other reachable sets*
- Z. Szafraniec: *Algebraically constructible functions*
- V. Thilliez: *Applications of Lojasiewicz inequalities to the study of very smooth functions*
- A. Weber: *Residues in intersection homology*