

PREFACE

Although singularity theory and its applications have been extensively developed for more than a half century, an increasing number of deep geometrical questions are still generally considered as extremely interesting and stimulating for interdisciplinary research. According to what is reported among mathematicians we find for example searching for local and global symplectic invariants, Gromov-Witten invariants, mirror symmetry, blow-analytic and Lipschitz equivalences, mixed Hodge structures, motivic integration, subanalytic and semialgebraic sets, affine invariants of curves and surfaces, Hamiltonian systems and their generalizations, singularities of various geometric objects and structures etc. New singularity theory methods and techniques for solving theoretical and practical problems are being developed all the time.

With the objectives of exploring the current and potential areas of interactions of singularity theory with other mathematical disciplines and of fostering active exchange of ideas among people with different scientific background, annual Banach Center Symposia have been organized since 2001 as a common initiative together with Japanese mathematicians. Contributions to the present volume are based on talks delivered during the two Symposia in 2001 and 2002. The subjects of the articles include: arc-analytic homeomorphisms, invariants of bi-Lipschitz equivalence, asymptotic critical values, Lipschitz stratifications, singularities of ruled manifolds, normalization of algebraic threefolds, algebras associated to isolated singularities, the generalized Hodge conjecture, singularities of smooth distributions, Lagrangian and Legendrian singularities, integrability of implicit differential systems, curves and surfaces in hyperbolic space, classification of singularities of smooth mappings, local properties of singular symplectic structures. The reader can find valuable research contributions and expository papers bringing some new results. All the papers after being carefully refereeing have been considered suitable for publication in the volume.

The very special creative atmosphere of the Symposia would not be possible without the enthusiasm and an extraordinary energetic intellectual support of Professor Stanisław Łojasiewicz who passed away during the preparation of this volume acting as its editor. His optimism and brilliant personality will be deeply missed. We dedicate this volume to his memory.

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Stanisław Janeczko

語らぬと学ぶこと多く
 語らぬと夢と希望がふくらみ
 語らぬ以上は達成に励む
 ベウンドレボバタツハ研究センター

So much can be learned from others' words.
 Hopes and dreams grow on your own words.
 And once in words, they should be achieved.

Heisuke Hironaka