

Table of Contents

Preface	V
Table of Contents	VII
1 Introduction and Content	1
1.1 Motivations	1
1.2 Content and Organization of the Book	4
1.3 The Motion Planing Problem in Robotics as an Example	7
1.4 A Proof of the Morse-Sard Theorem in the Simplest Case....	18
2 Entropy	23
3 Multidimensional Variations	33
4 Semialgebraic and Tame Sets	47
5 Variations of Semialgebraic and Tame Sets	59
6 Some Exterior Algebra	75
7 Behaviour of Variations under Polynomial Mappings	83
8 Quantitative Transversality and Cuspidal Values	99
9 Mappings of Finite Smoothness	109
10 Some Applications and Related Topics	131
10.1 Applications of Quantitative Sard and Transversality Theorems	132
10.1.1 Maxima of smooth families	132
10.1.2 Average topological complexity of fibers	133
10.1.3 Quantitative Kupka-Smale Theorem	134
10.1.4 Possible Applications in Numerical Analysis	136
10.2 Semialgebraic Complexity of Functions	148
10.2.1 Semialgebraic Complexity	149
10.2.2 Semialgebraic Complexity and Sard Theorem	152
10.2.3 Complexity of Functions on Infinite-Dimensional Spaces	153

10.3 Additional Directions	155
10.3.1 Asymptotic Critical Values of Semialgebraic and Tame Mappings	155
10.3.2 Morse-Sard Theorem in Sobolev Spaces	156
10.3.3 From Global to Local: Real Equisingularity	157
10.3.4 C^k Reparametrization of Semialgebraic Sets	158
10.3.5 Bernstein-Type Inequalities for Algebraic Functions...	159
10.3.6 Polynomial Control Problems	161
10.3.7 Quantitative Singularity Theory	165
Glossary	171
References	173

<http://www.springer.com/978-3-540-20612-5>

Tame Geometry with Application in Smooth Analysis

Yomdin, Y.; Comte, G.

2004, CC, 190 p., Softcover

ISBN: 978-3-540-20612-5