
Contents

1	Introduction	1
2	The h-Cobordism Theorem	5
2.1	The h -Cobordism Theorem and Generalized Poincaré Conjecture	5
2.2	Tangent vectors, embeddings, isotopies	9
2.3	Handles and handlebody decomposition	13
2.4	Calculus of handle moves	18
2.5	Proof of the h -Cobordism Theorem	29
3	The s-Cobordism Theorem	35
3.1	Statement of the s -Cobordism Theorem	35
3.2	Whitehead group	40
3.3	Whitehead torsion for chain complexes	43
4	Some Classical Results	53
4.1	Novikov's Theorem	53
4.2	A counterexample to the Hurewicz Conjecture	55
4.3	Milnor's exotic spheres	58
4.4	Rochlin's Theorem	61
4.5	Proof of Novikov's Theorem	64
4.6	Novikov Conjecture	72
5	Exotic Spheres and Surgery	75
5.1	Plumbing	75
5.2	Surgery	80
6	Hauptvermutung	89
6.1	The Fundamental Theorem of algebraic K -theory	89
6.2	Edwards-Cannon's example	98
6.3	The Hauptvermutung	102
6.4	Whitehead torsion	103
6.5	Proof of Stallings' Theorem	108
6.6	Farrell-Hsiang's example	112

6.7	The structure set	115
6.8	Siebenmann's example	120
References	125
Index	127