Contents

Preface ................................................................. v

1 Generalized manifolds: Introduction ............................................. 1
  1.1 Resolutions of generalized manifolds ........................................ 6
  1.2 General position properties .................................................. 14

2 Surgery theory and applications to resolutions of generalized manifolds .... 19
  2.1 Review of surgery theory on compact manifolds .................................. 19
  2.2 Surgery spectra, assembly maps, and Poincaré duality ......................... 35
  2.3 Boundedly controlled surgery theory ............................................ 46
  2.4 Germ methods in bounded surgery theory. Applications to ANR homology manifolds .................................................. 60
  2.5 Invariance of the index. Generalized manifolds with boundary. Gluings ......... 73

3 Controlled surgery theory and constructions of generalized manifolds .... 79
  3.1 The general construction ..................................................... 80
  3.2 Review of Quinn’s results .................................................... 82
  3.3 Technical preliminaries ..................................................... 89
  3.4 Construction of 4k-dimensional generalized manifolds ........................ 91
  3.5 The $\epsilon$-$\delta$-surgery sequence .......................................... 100
  3.6 Construction of generalized manifolds using the $\epsilon$-$\delta$-surgery sequence and the theorems of Bryant–Ferry–Mio–Weinberger ......................... 107

4 Generalized manifolds and surgery theory ..................................... 117
  4.1 The homology manifold surgery sequence ..................................... 117
  4.2 Development of homology manifold surgery theory: Normal invariants ....... 121
  4.3 Final remarks ........................................................................... 125

Bibliography ................................................................. 127

Index .............................................................................. 145