

## Contents

Introduction.....	1
1. The index.....	19
2. Real representations.....	25
3. Extension and reduction.....	30
4. The functor $\mathcal{O}_*(H; \mathbb{F}, \mathbb{F})$ .....	33
5. Index as a bordism invariant.....	36
6. The trace invariant.....	41
7. The local invariant.....	44
8. Periodic maps on a Riemann surfaces.....	50
9. The Atiyah-Bott formula.....	60
10. Weakly complex involutions.....	62
11. The ring $F$ .....	68
12. The ring $R(\mathbb{Z}_2)$ .....	80
13. The ring $B(\mathbb{Z}_2)$ of constructions.....	92
14. Applications.....	100
15. Dimension of the fixed point set.....	103
16. A local invariant for $\mathcal{O}_*^U(\mathbb{Z}_2)$ .....	107
References.....	116