Chapter IV. I must say, however, that no book is ever without some problems and this book seems far better than average. A graduate student in topology would gain a lot from reading this book and wouldn't suffer too much. He would probably need to consult some other sources, which wouldn't be hazardous to his education.

References

1. J. F. Adams, *Vector fields on the sphere*, Ann. of Math. (2) **75** (1962), 603–632.

2. M. F. Atiyah, R. Bott and A. Shapiro, *Clifford modules*, Topology **3** (1964), 3–38.

3. M. F. Atiyah and F. Hirzebruch, *Vector bundles and homogeneous spaces*, Proc. Sympos. Pure Math., vol. 3, Amer. Math. Soc., Providence, R. I., 1961, pp. 7–38.

4. M. F. Atiyah and I. M. Singer, *The index of elliptic operators*. I, II, III, Ann. of Math. (2) **87** (1968), 484–530, 531–545 (with G. Segal), 546–604.

5. H. Bass, *Algebraic K-theory*, Benjamin, New York, 1968.

6. A. Borel and J. P. Serre, *Le théorème de Riemann-Roch* (*d'après Grothendieck*), Bull. Soc. Math. France **86** (1958), 97–136.

7. L. G. Brown, R. G. Douglas and P. A. Fillmore, *Extensions of C*-algebras, operators with compact self-commutators, and K-homology*, Bull. Amer. Math. Soc. **79** (1973), 973–978.

8. D. Husemoller, *Fiber bundles*, 2nd ed., Springer-Verlag, Berlin, Heidelberg, New York, 1975.

9. D. Quillen, *Higher algebraic K-theory*, Springer-Verlag, Berlin, Heidelberg, New York, 1973.

10. R. G. Swan, *Vector bundles and projective modules*, Trans. Amer. Math. Soc. **105** (1962), 264–277.

ROBERT E. STONG

BULLETIN (New Series) OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 1, Number 4, July 1979

0002-9904/79/0000-0310/$02.50

Modern methods in partial differential equations, an introduction, by Martin Schechter, McGraw-Hill, New York, 1977, xv + 245 pp.

In the theory of linear partial differential equations, one is given an equation of the form

$$Pu = \sum_{|\alpha| < m} p_{(\alpha)}(x) D^{\alpha} u = f, \qquad x \in \Omega, \tag{1}$$

generally supplemented by boundary conditions or one or more hypersurfaces in Ω, and one asks questions about the solutions of (1), typically in one of the following three categories:

(2) Existence.

(3) Uniqueness.

(4) Qualitative behavior.

The last category is quite broad; one is asking what the solutions look like. One wants to know "everything" about them, ideally; such properties as regularity, propagation of singularities, and estimates in various norms are special cases, but of course endlessly more questions arise, such as behavior of nodal sets, decay of solutions, location of maxima, limiting behavior under (possibly quite singular) perturbations of the equation or the boundary, spectral behavior of P, and many more.