Bott, Raoul
Collected papers of Raoul Bott. Vol. 2: Differential operators. Ed. by Robert D. MacPherson. (English) ‎Zbl 0807.01033‎
Contemporary Mathematicians. Boston, MA: Birkhäuser. xxxiii, 802 p., Set: DM 678,00; öS 5.288,40; sFr 598,00; £ 265,00 (1994).

This volume presents the collected papers on the relation between topology and analysis of the outstanding and esteemed mathematician Raoul Bott. Raoul Bott wrote ninety-three research papers but this volume contains only twenty-one research papers. The titles of the research papers are as follows: (1) Clifford modules (with M. F. Atiyah and A. Shapiro), (2) The index problem for manifolds with boundary (with M. F. Atiyah), (3) On the periodicity theorem for complex vector bundles (with M. F. Atiyah), (4) Notes on the Lefschetz fixed point theorem for elliptic complexes (with M. F. Atiyah), (5) The index theorem for homogeneous differential operators, (6) Hermitian vector bundles and the equidistribution of the zeroes of three holomorphic sections (with S. S. Chern), (7) A fixed point theorem for elliptic complexes, (8) A Lefschetz fixed point formula for elliptic differential operators (with M. F. Atiyah), (9) Vector fields and characteristic numbers, (10) A Lefschetz fixed point formula for elliptic complexes I (With M. F. Atiyah), (11) A residue formula for holomorphic vector-fields, (12) A Lefschetz fixed point formula for elliptic complexes. II Application (with M. F. Atiyah), (13) Topics on topology and differential geometry (with John Mather), (14) Lectures on $K(X)$, (15) Lacunas for hyperbolic differential apparators with constant coefficients. I (with M. F. Atiyah and L. Garding), (16) Some formulas related to complex transgression (with S. S. Chern), (17) On the zeroes of meromorphic vector fields (with Paul F. Baum), (18) On the heat equation and the index theorem (with M. F. Atiyah and V. K. Patodi), (19) Errata to the paper on the heat equation and the index theorem (with M. F. Atiyah and V. K. Patodi), (20) Lacunas for hyperbolic differential operators with constant coefficients II (with M. F. Atiyah and L. Gardin), (21) The topological constraints on analysis.

Besides these papers, volume 2 contains Raoul Bott's own commentaries on some of the papers contained in this volume. Victor Vassiliev, Michael Atiyah and Ezran Getzler wrote additional commentaries on Bott's papers. The Editor Robert MacPherson wrote a special introduction. The collected works are meant to be more than a collection for record or for future historians of mathematics to sort out mathematical movements. The importance of this collection lies not only in its documentary value but also as a collection of key mathematical works. The collection of Raoul Bott serves as a tribute to him as a man, a mathematician and above all a teacher.

Reviewer: P.K.Majumdar (Pargansas)

MSC:

01A75 Collected or selected works; reprintings or translations of classics

Cited in **4** Reviews

Keywords:

Clifford modules; complex vector bundles; differential geometry; elliptic complexes; Hermitian vector bundles; holomorphic sections; topology