

*Pacific
Journal of
Mathematics*

**ERRATA: "POINCARÉ COBORDISM EXACT SEQUENCES AND
CHARACTERISATION"**

HIMADRI KUMAR MUKERJEE

Volume 157 No. 2

February 1993

ERRATA
CORRECTION TO
POINCARÉ COBORDISM EXACT SEQUENCES
AND CHARACTERISATION

HIMADRI KUMAR MUKERJEE

Volume 146 (1990), 85–101

In view of the remarks of the reviewer (cf. MR 91j: 57021) we give the following clarifications for the benefit of the reader:

1. Theorem (B) page 86 remains true.

2. Theorem (D) page 87 now states the following:

An element $[X] \in \Omega_n^{\text{P.D.}}$ is zero if and only if

(i) $n \not\equiv 0 \pmod{4}$ and all integral as well as \mathbb{Z}/p -normal spherical characteristic numbers of X , \forall prime p , are zero.

(ii) $n \equiv 0 \pmod{4}$ and all integral and \mathbb{Z}/p -normal spherical characteristic numbers of X , \forall prime p , and index of X are zero.

3. The arguments on lines 17 to 19 of page 97 should be given as follows:

and integral as well as \mathbb{Z}/p -normal spherical characteristic numbers \forall odd prime p , and index of X are zero (x being a 2-torsion element) hence $(Z, \tilde{g} \times \lambda, \tilde{c} \times \tilde{\lambda})$ determines (X, f, b) up to oriented cobordism by 2 above.

Justification of 1. First of all the Proposition (5.2) page 94 now remains valid for n odd only. This change however does not affect the definition of ∂ as given in (5.4), (5.5) page 95 and (5.6) page 96 as injectivity of P of Proposition (5.2) is not needed anywhere.

Next, proofs of parts (i) and (ii) of Theorem (B) page 96 do not need injectivity of P of Theorem (5.2) page 94. Lastly, the proof of Theorem (B) part (iii) page 97 for $n \equiv 0 \pmod{2}$ can be made free from Proposition (5.2) page 94 by using the following purely geometrical arguments: The proof of $\partial \circ r = 0$ is the same as in the paper. Let $[(X^n, f, b)] \in \text{Ker } \partial$. Choose a representative (Z^{n-1}, f, b) of $\partial([(X, f, b)])$ such that Z^{n-1} is an oriented P.D. space Poincaré embedded in X^n . (In fact $f: X \rightarrow \text{BSG}(k-1) \times S^1 \xrightarrow{\pi_2} S^1$ is

Poincaré splittable by the first remark of the Reviewer. So f can be homotoped to a map transverse to $pt \subseteq S^1$. One can then take $Z \subseteq X$ to be the inverse image of the point under this transverse map.) By hypothesis Z^{n-1} is an oriented boundary, so we have a triple $((Y^n, Z^{n-1}), g, \beta)$ where (Y^n, Z^{n-1}) is an oriented P.D. pair with $g|_{Z^{n-1}} = \bar{f}$, $\beta|_{\nu_Z} = \bar{b}$. If we now cut X along Z (along which the orientation of X changes) we get an oriented P.D. pair $(\bar{X}^n, Z^{n-1} \cup -Z^{n-1})$. Glue one copy of (Y^n, Z^{n-1}) along each copy of Z^{n-1} in the pair $(\bar{X}, Z \cup -Z)$, respecting orientation, to get an oriented P.D. space \tilde{Y}^n . So $[(\tilde{Y}, f \cup g, b \cup \beta)] \in \Omega_n^{\text{P.D.}}$.

Now consider the triple

$$((\tilde{Y} \times I, \tilde{Y} \times \{0\} \cup \tilde{Y} \times \{1\}), (f \cup g) \times 1_I, (b \cup \beta) \times 1_I)$$

and glue the two copies of (Y^n, Z^{n-1}) in $Y \times \{1\}$ together to get a triple

$$((W^{n+1}\tilde{Y} \times \{0\}, X), \overline{(f \cup g) \times 1_I}, \overline{(b \cup \beta) \times 1_I}).$$

This gives a cobordism between $(\tilde{Y}, f \cup g, b \cup \beta)$ and (X, f, b) in $\tilde{\Omega}_n^{\text{P.D.}}$. So $r([(\tilde{Y}, f \cup g, b \cup \beta)]) = [(X, f, b)]$.

Justification of 2. On pages 98 and 99 wherever statements involving cohomology with \mathbb{Z} coefficients alone are used we should change it to statements involving cohomology with \mathbb{Z} as well as \mathbb{Z}/p , \forall prime p , as coefficients. So in particular on page 99 the first diagram should be supplemented with a similar diagram involving cohomology with \mathbb{Z}/p -coefficients, \forall prime p . So $\Lambda = \mathbb{Z}$ or \mathbb{Z}/p , \forall prime p if $[(y, g, b)] \in \Omega_n^{\text{P.D.}}$.

Finally we thank the reviewer Ian Hambleton for bringing the inaccuracies to our notice.

NORTH-EASTERN HILL UNIVERSITY
LAITUMKHRAH (BIJNI COMPLEX)
SHILLONG-793003-INDIA

PACIFIC JOURNAL OF MATHEMATICS

Founded by

E. F. BECKENBACH (1906–1982) F. WOLF (1904–1989)

EDITORS

V. S. VARADARAJAN
(Managing Editor)
University of California
Los Angeles, CA 90024-1555
vsv@math.ucla.edu

HERBERT CLEMENS
University of Utah
Salt Lake City, UT 84112
clemens@math.utah.edu

F. MICHAEL CHRIST
University of California
Los Angeles, CA 90024-1555
christ@math.ucla.edu

THOMAS ENRIGHT
University of California, San Diego
La Jolla, CA 92093
tenright@ucsd.edu

NICHOLAS ERCOLANI
University of Arizona
Tucson, AZ 85721
ercolani@math.arizona.edu

R. FINN
Stanford University
Stanford, CA 94305
finn@gauss.stanford.edu

VAUGHAN F. R. JONES
University of California
Berkeley, CA 94720
vfr@math.berkeley.edu

STEVEN KERCKHOFF
Stanford University
Stanford, CA 94305
spk@gauss.stanford.edu

C. C. MOORE
University of California
Berkeley, CA 94720

MARTIN SCHARLEMANN
University of California
Santa Barbara, CA 93106
mgscharl@henri.ucsb.edu

HAROLD STARK
University of California, San Diego
La Jolla, CA 92093

SUPPORTING INSTITUTIONS

UNIVERSITY OF ARIZONA
UNIVERSITY OF BRITISH COLUMBIA
CALIFORNIA INSTITUTE OF TECHNOLOGY
UNIVERSITY OF CALIFORNIA
MONTANA STATE UNIVERSITY
UNIVERSITY OF NEVADA, RENO
NEW MEXICO STATE UNIVERSITY
OREGON STATE UNIVERSITY

UNIVERSITY OF OREGON
UNIVERSITY OF SOUTHERN CALIFORNIA
STANFORD UNIVERSITY
UNIVERSITY OF HAWAII
UNIVERSITY OF TOKYO
UNIVERSITY OF UTAH
WASHINGTON STATE UNIVERSITY
UNIVERSITY OF WASHINGTON

The Supporting Institutions listed above contribute to the cost of publication of this Journal, but they are not owners or publishers and have no responsibility for its content or policies.

Mathematical papers intended for publication in the *Pacific Journal of Mathematics* should be in typed form or offset-reproduced (not dittoed), double spaced with large margins. Please do not use built up fractions in the text of the manuscript. However, you may use them in the displayed equations. Underline Greek letters in red, German in green, and script in blue. The first paragraph must be capable of being used separately as a synopsis of the entire paper. In particular it should contain no bibliographic references. Please propose a heading for the odd numbered pages of less than 35 characters. Manuscripts, in triplicate, may be sent to any one of the editors. Please classify according to the 1991 *Mathematics Subject Classification* scheme which can be found in the December index volumes of *Mathematical Reviews*. Supply name and address of author to whom proofs should be sent. All other communications should be addressed to the managing editor, or Julie Speckart, University of California, Los Angeles, California 90024-1555.

There are page-charges associated with articles appearing in the Pacific Journal of Mathematics. These charges are expected to be paid by the author's University, Government Agency or Company. If the author or authors do not have access to such Institutional support these charges are waived. Single authors will receive 50 free reprints; joint authors will receive a total of 100 free reprints. Additional copies may be obtained at cost in multiples of 50.

The *Pacific Journal of Mathematics* (ISSN 0030-8730) is published monthly except for July and August. Regular subscription rate: \$190.00 a year (10 issues). Special rate: \$95.00 a year to individual members of supporting institutions.

Subscriptions, orders for numbers issued in the last three calendar years, and changes of address should be sent to Pacific Journal of Mathematics, P.O. Box 969, Carmel Valley, CA 93924, U.S.A. Old back numbers obtainable from Kraus Periodicals Co., Route 100, Millwood, NY 10546.

The Pacific Journal of Mathematics at P.O. Box 969, Carmel Valley, CA 93924 (ISSN 0030-8730) is published monthly except for July and August. Second-class postage paid at Carmel Valley, California 93924, and additional mailing offices. Postmaster: send address changes to Pacific Journal of Mathematics, P.O. Box 969, Carmel Valley, CA 93924.

PUBLISHED BY PACIFIC JOURNAL OF MATHEMATICS, A NON-PROFIT CORPORATION

Copyright © 1993 by Pacific Journal of Mathematics

PACIFIC JOURNAL OF MATHEMATICS

Volume 157 No. 2 February 1993

Strong integral summability and the Stone-Čech compactification of the half-line	201
JEFF CONNOR and MARY ANNE SWARDSON	
The endlich Baer splitting property	225
THEODORE GERARD FATICONI	
The formal group of the Jacobian of an algebraic curve	241
MARGARET N. FREIJE	
Concordances of metrics of positive scalar curvature	257
PAWEL GAJER	
Explicit construction of certain split extensions of number fields and constructing cyclic classfields	269
STANLEY JOSEPH GURAK	
Asymptotically free families of random unitaries in symmetric groups	295
ALEXANDRU MIHAI NICA	
On purifiable subgroups and the intersection problem	311
TAKASHI OKUYAMA	
On the incidence cycles of a curve: some geometric interpretations	325
LUCIANA RAMELLA	
On some explicit formulas in the theory of Weil representation	335
R. RANGA RAO	
An analytic family of uniformly bounded representations of a free product of discrete groups	373
JANUSZ WYSOCZAŃSKI	
Errata: "Dentability, trees, and Dunford-Pettis operators on L_1 "	389
MARIA GIRARDI and ZHIBAO HU	
Errata: "Poincaré cobordism exact sequences and characterisation"	395
HIMADRI KUMAR MUKERJEE	



0030-8730(1993)157:2;1-I