

# OSAKA JOURNAL OF MATHEMATICS

EDITED BY

S. ARAKI            H. KUMANO-GO  
H. MORIMOTO    H. NAGAO

WITH THE COOPERATION OF

M. HARADA	<b>T. HONDA</b>	N. IKEDA
M. INOUE	H. KUDŌ	S. MURAKAMI
Y. NAKAI	M. NAKAOKA	N. NINOMIYA
H. OZEKI	H. TANABE	J. TAO
T. WATANABE		

Volume 12

1975

PUBLISHED JOINTLY BY THE

DEPARTMENTS OF MATHEMATICS

OSAKA UNIVERSITY AND OSAKA CITY UNIVERSITY



## INDEX

AMEMIYA, I., MASUDA, K. and SHIGA, K.: Lie Algebras of Differential Operators. ....	139
ARAKI, S.: Multiplicative Operations in $BP$ Cohomology. ....	343
DALEY, R.P.: A Note on a Result of Kamae. ....	283
DATE, E.: On Scattering Theory of a First Order Ordinary Differential Operator. ....	777
FUJINO, T.: Immersions and Embeddings of Orbit Manifolds $D_p(l, m)$ of $S^{2l+1} \times S^m$ by the Dihedral Group $D_p$ . ....	299
FURUKAWA, Y. and NOMURA, Y.: On the Loop-order of a Fibre Space. ....	607
HARA, T.: On the Asymptotic Behavior of Solutions of Certain Non-autonomous Differential Equations. ....	267
HARADA, M.: On the Exchange Property in a Directsum of Indecomposable Modules. ....	719
HARADA, M. and ISHII, T.: On Perfect Rings and the Exchange Property. ....	483
HAYAKAWA, K.: On the Limit State of Solutions of Some Semilinear Diffusion Equations. ....	766
HIRASHIMA, Y.: On the $BP_*$ -Hopf Invariant. ....	187
HONDA, T.: A Few Remarks on Class Numbers of Imaginary Quadratic Number Fields. ....	19
HOTTA, R. and MURAKAMI, S.: On a Vanishing Theorem for Certain Cohomology Groups. ....	555
HOTTA, R. and WALLACH, N.R.: On Matsushima's Formula for the Betti Numbers of a Locally Symmetric Space. ....	419
IKAWA, M.: Problèmes Mixtes pas Nécessairement $L^2$ -bien Posés pour les Équations Strictement Hyperboliques. ....	69
IKEDA, A.: Formally Self Adjointness for the Dirac Operator on Homogeneous Spaces. ....	173
ISHII, T.: On Locally Direct Summands of Modules. ....	473
ISHII, T. and HARADA, M.: On Perfect Rings and the Exchange Property....	483
ITO, N.: On Tight 4-designs. ....	493
IYANAGA, S.: Taira HONDA	i
KANZAKI, T.: On Galois Extension with Involution of Rings. ....	691
KAWANAKA, N.: Unipotent Elements and Characters of Finite Chevalley Groups. ....	523
KAWAUCHI, A.: Three Dimensional Homology Handles and Circles. ....	565
KREIMER, H.F.: Galois Theory and Ideals in Commutative Rings. ....	441
KRIER, R.: Sur les Idéaux de l'Algèbre de Banach des Fonctions Intégrables Biinvariantes. ....	745
KYUNO, S.: On the Radicals of $\Gamma$ -rings. ....	639

LANDWEBER, P.S.: $BP_*(BP)$ and Typical Formal Groups. ....	357
LARMORE, L.L.: Real $n$ -plane Bundles over an $(n+1)$ -complex. ....	325
LIN, I.-P.: Products of Torsion Theories and Applications to Coalgebras. .....	433
MANABE, S.: On the Hitting Properties of a Class of One-dimensional Markov Processes. ....	217
MARUBAYASHI, H.: Non Commutative Krull Rings. ....	703
MASUDA, K., SHIGA, K. and AMEMIYA, I.: Lie Algebras of Differential Operators. ....	139
MINAMI, H.: $K$ -groups of Symmetric Spaces I. ....	623
MIYANISHI, M. and NAKAI, Y.: Some Remarks on Strongly Invariant Rings. ....	1
MIYAWAKI, I.: On the Number of the Lattice Points in the Area $0 < x < n$ , $0 < y \leq ax^*/n$ . ....	647
MURAKAMI, S. and HOTTA, R.: On a Vanishing Theorem for Certain Cohomology Groups. ....	555
Nagao, H. and Nomura, K.: A Note on a Fixed-point-free Automorphism and a Normal $p$ -complement. ....	635
NAKAI, Y. and MIYANISHI, M.: Some Remarks on Strongly Invariant Rings. ....	1
NAKAOKA, M.: Continuous Maps of Manifolds with Involution III. ....	197
NAKAOKA, M.: <i>Correction to</i> Characteristic Classes with Values in Complex Cobordism. ....	215
NOMURA, K. and NAGAO, H.: A Note on a Fixed-point-free Automorphism and a Normal $p$ -complement. ....	635
NOMURA, Y. and FURUKAWA, Y.: On the Loop-order of a Fibre Space. ....	607
ŌSHIMA, H.: On Stable James Numbers of Quaternionic Projective Spaces. ....	209
OSHIRO, K.: A Note on Direct Sums of Cyclic Modules over Commutative Regular Rings. ....	715
RAY-CHAUDHURI, D.K. and WILSON, R.M.: On $t$ -designs. ....	737
RITTER, G.X.: On Fixed Point Free Involutions of $T^3$ . ....	365
SAKAI, A.: Uniform Algebra Generated by $z_1, \dots, z_n, f_1(z), \dots, f_s(z)$ . ....	33
SCHECHTER, M.: Proper Boundary Points of the Spectrum. ....	41
SHIBATA, K.: On Semi-continuity of Dilatational Functionals. ....	53
SHIGA, K., AMEMIYA, I. and MASUDA, K.: Lie Algebras of Differential Operators. ....	139
Sugitani, S.: On Nonexistence of Global Solutions for Some Nonlinear Integral Equations. ....	45
SUMIOKA, T.: A Characterization of the Triangular Matrix Rings over QF Rings. ....	449

TAKEUCHI, Y.: On Galois Objects Which are Strongly Radicial over its Basic Ring. ....	23
UCHIDA, F.: Smooth Actions of Special Unitary Groups on Cohomology Complex Projective Spaces. ....	375
UCHIDA, F.: Compact Transformation Groups and Fixed Point Sets of Restricted Action to Maximal Torus. ....	597
URAKAWA, H.: On the Hardy Class of Harmonic Sections and Vector-valued Poisson Integrals. ....	117
URAKAWA, H.: The Heat Equation on Compact Lie Group. ....	285
WALLACH, N.R. and HOTTA, R.: On Matsushima's Formula for the Betti Numbers of a Locally Symmetric Space. ....	419
WILSON, R.M. and RAY-CHAUDHURI, D.K.: On $t$ -designs. ....	737
YAMASAKI, Y.: On the Endomorphism Ring of Honda Groups $H_{n,m}$ over $p$ -adic Integer Rings. ....	457
YAMATO, K.: Examples of Foliations with Non Trivial Exotic Character- istic Classes. ....	401
YOKOGAWA, K.: On $S \otimes_{\mathbb{R}} S$ -module Structure of $S/R$ -Azumaya Algebras. .....	673
YOSIMURA, Z.: Universal Coefficient Sequences for Cohomology Theories of $CW$ -spectra. ....	305
YOSIMURA, Z.: A Note on the Relation of $\mathbb{Z}_2$ -graded Complex Cobordism to Complex $K$ -theory. ....	583









昭和51年2月5日

兼者  
集行  
編發

大阪大学理学部  
代表者 松島祥夫  
豊中市待兼山町1番1号

大阪大学教養部  
代表者 川口慎二  
豊中市待兼山町1番1号

大阪市立大学理学部  
代表者 吉良竜夫  
大阪市住吉区杉本町

印刷所 日本印刷出版株式会社  
印刷者 小林積造  
大阪市福島区吉野1丁目2-7

## CONTENTS

HOTTA, R. and MURAKAMI, S.: On a Vanishing Theorem for Certain Cohomology Groups. ....	555
KAWAUCHI, A.: Three Dimensional Homology Handles and Circles. ....	565
YOSIMURA, Z.: A Note on the Relation of $Z_2$ -graded Complex Cobordism to Complex $K$ -theory. ....	583
UCHIDA, F.: Compact Transformation Groups and Fixed Point Sets of Restricted Action to Maximal Torus. ....	597
FURUKAWA, Y. and NOMURA, Y.: On the Loop-order of a Fibre Space. ....	607
MINAMI, H.: $K$ -groups of Symmetric Spaces I. ....	623
NAGAO, H. and NOMURA, K.: A Note on a Fixed-point-free Automorphism and a Normal $p$ -complement. ....	635
KYUNO, S.: On the Radicals of $\Gamma$ -rings. ....	639
MIYAWAKI, I.: On the Number of the Lattice Points in the Area $0 < x < n$ , $0 < y \leq ax^k/n$ . ....	647
YOKOGAWA, K.: On $S \otimes_R S$ -module Structure of $S/R$ -Azumaya Algebras. ....	673
KANZAKI, T.: On Galois Extension with Involution of Rings. ....	691
MARUBAYASHI, H.: Non Commutative Krull Rings. ....	703
OSHIRO, K.: A Note on Direct Sums of Cyclic Modules over Commutative Regular Rings. ....	715
HARADA, M.: On the Exchange Property in a Directsum of Indecomposable Modules. ....	719
RAY-CHAUDHURI, D.K. and WILSON, R.M.: On $t$ -designs. ....	737
KRIER, R.: Sur les Idéaux de l'Algèbre de Banach des Fonctions Intégrables Biinvariantes. ....	745
HAYAKAWA, K.: On the Limit State of Solutions of Some Semilinear Diffusion Equations. ....	766
DATE, E.: On Scattering Theory of a First Order Ordinary Differential Operator. ....	777