## HIROSHIMA MATHEMATICAL JOURNAL

VOLUME 42, NUMBER 2

JULY, 2012

PUBLISHED BY

DEPARTMENT OF MATHEMATICS GRADUATE SCHOOL OF SCIENCE HIROSHIMA UNIVERSITY

## Hiroshima Mathematical Journal

Editors

Kunimochi SAKAMOTO	(Managing Editor)
Makoto ABE	Yoshio AGAOKA
Akihiko INOUE	Seiichi KAMADA
Mishio KAWASHITA	Shun-ichi KIMURA
Ryo KOBAYASHI	Hiraku NISHIMORI
Makoto SAKUMA	Ichiro SHIMADA
Hirofumi WAKAKI	Masafumi YOSHINO

Hiroshima Mathematical Journal is a continuation of Journal of Science of the Hiroshima University, Series A, Vol. 1~Vol. 24 (1930~1960) and Journal of Science of the Hiroshima University, Series A-I, Vol. 25~34 (1961~1970).

Starting with Volume 4 (1974), each volume of Hiroshima Mathematical Journal consists of three numbers annually. This journal publishes original papers in pure and applied mathematics.

Copyright © by Editorial Board of Hiroshima Mathematical Journal Department of Mathematics, Graduate School of Science, Hiroshima University

> Printed by Letterpress Co., LTD. Hiroshima, Japan

## **Instructions for Authors**

- 1. Manuscripts should be written in English and should contain
  - (i) title
  - (ii) name(s) of author(s)
  - (iii) abstract
  - (iv) 2000 Mathematics Subject Classification Numbers, and key words and phrases
  - (v) body of the paper
  - (vi) references
  - (vii) affiliation(s), address(es) and e-mail address(es)

in this order. For symbols and style conventions, authors should consult current issues of the journal. Color printing may be accepted with some possible charge.

- 2. Manuscripts should be submitted in duplicate to the HMJ office. Attached should be a separated sheet containing
  - (a) the title of the paper
  - (b) the mailing address (and an e-mail address) of the author who is responsible for proof-readings
  - (c) the running title (condensed title of less than 30 characters).

The manuscript will not usually be returned to the author.

It is preferred that manuscripts be prepared using the LaTeX2e style file of HMJ, which is available from the HMJ webpage, with no special macros. Then it is only necessary for the author to submit a LaTeX source file together with a pdf file (or a dvi file) and (a), (b) and (c) to the HMJ office by e-mail. If we have a trouble in handling the files, then the author may be asked to send a printed manuscript as well.

The LaTeX style file of HMJ, its documentation, and a sample tex file can be obtained from the HMJ webpage.

- 3. When the manuscript is accepted for publication, the author will be asked for the LaTeX source file and the pdf file (the dvi file) which must be identical to that of the final version of the manuscript.
- 4. The pdf files of papers published in the journal will be offered to the public without charge on the HMJ webpage. The author will be asked to give consent for the journal to publish electronically as well as in print. Authors reserve the right to post their papers on the authors' homepages.
- 5. Authors of papers published in the journal will have a total of 50 offprints for papers without charge.
- 6. The address and the e-mail address of the HMJ office are:

Hiroshima Mathematical Journal Department of Mathematics Graduate School of Science Hiroshima University Higashi-Hiroshima 739-8526 Japan

Tel: +81-82-424-7350 Fax: +81-82-424-0710 E-mail: hmj@math.sci.hiroshima-u.ac.jp HMJ webpage: http://www.math.sci.hiroshima-u.ac.jp/hmj/index.html

## CONTENTS

	Dean
K. TANAKA: Atomic decomposition of harmonic Bergman functions	Page 143
<b>K. TAKAO:</b> Bridge decompositions with distances at least two	161
C. ZHANG: Invariant Teichmüller disks under hyperbolic mapping classes	169
<b>K. TANIGUCHI:</b> Permanence and global asymptotic stability for a generalized nonautonomous Lotka-Volterra competition system	
M. HYODO, T. YAMADA, T. HIMENO and T. SEO: A modified linear dis- criminant analysis for high-dimensional data	
W. CHU and N. N. LI: Terminating q-Kampé de Fériet Series $\Phi_{1:2;\mu}^{1:3;\lambda}$ and $\Phi_{2:1;\mu}^{2:2;\lambda}$	233
S. GOTO, Y. HEMMI, K. KOMATSU and J. YAGI: The closed chains with spherical configuration spaces	
T. IGARASHI and N. UMEDA: Existence of global solutions in time for reaction- diffusion systems with inhomogeneous terms in cones	