

ISSN 0023-6071

**BULLETIN OF THE INSTITUTE  
FOR CHEMICAL RESEARCH**

**KYOTO UNIVERSITY**

Vol. 67, No. 3

*Commemoration Issue Dedicated to  
Professor Shinzaburo OKA  
On the Occasion of His Retirement*

*Published bi-monthly by*  
**THE INSTITUTE FOR CHEMICAL RESEARCH  
KYOTO UNIVERSITY  
KYOTO, JAPAN**

November 1989

*(Bull. Inst. Chem. Res., Kyoto Univ.)*

**INSTITUTE FOR CHEMICAL RESEARCH  
KYOTO UNIVERSITY**

**Director**

Mitsuru TAKANAMI

**Members of Council**

Yoshichika BANDO	Kaoru FUJI	Tetsuya HANAI
Makoto INOUE	Keisuke KAJI	Minoru KANEHISA
Ken-ichi KATAYAMA	Takashi KOBAYASHI	Tadashi KOKUBO
Masakazu MATSUI	Takeaki MIYAMOTO	Takeshi MUKOYAMA
Jun'ichi ODA	Hisashi ODANI	Atsuyoshi OHNO
Kunihiro OSAKI	Sumio SAKKA	Teruya SHINJO
Kenji SODA	Nobuyuki SUGITA	Yukio SUGIURA
Sho TAKAHASHI	Mitsuru TAKANAMI	Hidekuni TAKEKOSHI
Tohru TAKENAKA	Shigeo TANIMOTO	

**Publication Committee**

Koji ASAMI	Makoto INOUE	Keisuke KAJI
Atsuyoshi OHNO	Kunihiro OSAKI	Toshinobu YOKOO

**Business Staff**

Toshiaki KOSUGE	Yoshihiko MAKI	Yukio NISHIMURA
-----------------	----------------	-----------------

**History of Publications**

Term	Vol.	Title	Published
Jan., 1929- Dec., 1947	1-16	化学研究所講演集 (The Reports of the Institute for Chemical Research)	Indeterminately
April, 1933	—	10 Jahre Institut für chemische Forschung (化学研究所創立十周年記念号)	—
March, 1949- Dec., 1949	17-19	化研講演集 (The Reports of the Institute for Chemical Research)	Indeterminately
March, 1950- Sept., 1952	20-30	化学研究所報告 (Bulletin of the Institute for Chemical Research)	Quarterly
Dec., 1951	—	The Commemoration Volume for the Silver Jubilee (化学研究所創立二十五周年記念号)	—
Jan., 1953 onwards	31 No. 1-	Bulletin of the Institute for Chemical Research (化学研究所報告)	Bi-monthly
Nov., 1966	44 No. 6	Special Issue on the Commemoration of the Fortieth Anniversary (化学研究所創立四十周年記念号)	—
Nov., 1976	54 No. 6	Special Issue on the Commemoration of the Fiftieth Anniversary (化学研究所創立五十周年記念号)	—



岡 信 三 郎 教 授  
Professor Dr. Shinzaburo Oka

## Emeritus Professor Shinzaburo Oka

On March 31, 1989, Professor Shinzaburo Oka, head of the Research Division for Organic Unit Reaction of the Institute for Chemical Research, Kyoto University, retired after forty-two years of service to the University, and the following day, he was honored with the title of Emeritus Professor of Kyoto University. Professor Oka began his service at Kyoto University in 1947 as a research associate at the Chest Disease Research Institute. Next year he joined to the Institute for Chemical Research and engaged in research to develop brand-new methods for organic synthesis.

Professor Oka was born in Kyoto on the 21st of March, 1926. He earned a bachelor's degree in chemistry from Kyoto University in September, 1947 and was awarded a doctorate in 1962 for his studies on the dehydrogenation from aliphatic glycols.

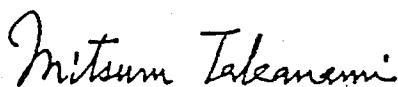
His research on organic synthesis includes alkylation of polyphenols, synthesis of crotonaldehyde by gas-phase condensation of acetaldehyde, preparation of lactones from aliphatic glycols, synthesis of acrolein from propylene or from formaldehyde and alkyl malonate, synthesis of methylene malonate from alkyl malonate and formaldehyde, and synthesis of cage-compounds.

He was also interested in organic synthesis mediated by organometallic compounds. The research in this field includes the carbon-carbon bond formation assisted by mercury or 8th group transition-metal elements, preparation of nitriles or halo compounds from halogenated compounds, dimerization of alkynes, preparation of ketones from acid chlorides, and preparation of nitriles from azides. His study in this field has been developed to the bio-inorganic chemistry of cytochrome P-450, which shed light on the mechanisms of certain biological reactions. His interest also concerned with organic synthesis by means of rare-earth metals such as of cerium.

Professor Oka's interest in organic synthesis did not stay in organic chemistry but further extended to the field of bio-organic chemistry including microbe-mediated synthesis of chiral building blocks.

Professor Oka's superiority as a teacher, insight into science, and warm hospitality not only have attracted and stimulated many young and talented students but also have won him the respect and admiration of many friends and colleagues. Among his numerous professional activities, he has served as a executive board of a couple of scientific societies.

On the occasion of his retirement, the friends, present and former associates and students of Professor Shinzaburo Oka take sincere pleasure in dedicating this collection of papers in honor of his long and devoted contributions to his Institute and to science.



Mitsuru Takanami  
Director  
Institute for Chemical Research  
Kyoto University

# CONTENTS

Commemoration Issue Dedicated to  
Professor Shinzaburo Oka  
on the Occasion of His Retirement

Syed Mashhood Ali, Shigeo Tanimoto and Tadashi Okamoto: Reaction of Di- $\mu$ -Chlorobis {2-[1-(chloromethyl)vinyl]- $\pi$ allyl} dipalladium with Halogens .....	89
Zhao-quan Wang, Manabu Node, Feng-ming Xu, Fujie Tanaka and Kaoru Fuji: Terpenoids. LV The Structure and Absolute Configuration of Macrocallyxoformin E .....	93
Kaoru Nakamura, Yoshihiko Inoue, Jun Shibahara and Atsuyoshi Ohno: Stereochemical Control in Microbial Reduction. 11. Enantioselective Reduction of $\beta$ - and $\gamma$ -Nitro Ketones with Bakers' Yeast .....	99
Mutsuji Sakai, Yoshihiro Takai, Ken Sasaki and Yasumasa Sakakibara: A Simple Preparation and Catalytic Properties of Colloidal Nickel for Selective Hydrogenation .....	107
Takashi Sugiyama: Transformation of Organic Functional Groups with Rare-Earth Compounds: The Reaction of Alkenes with Cerium (IV) Ammonium Nitrate .....	112
Naomichi Baba, Jun'ichi Oda, Seiichi Kawahara and Masayuki Hamada: Hydroperoxidation of 9-Hexylfluorene and Weitz-Scheffer Epoxidation of Cyclohexenones under Phase Transfer Condition .....	121

## Notes

Kazuhiko Tanaka, Hideki Ushio and Hiroshi Horiuchi: A New Synthetic Route to $\alpha$ -Methylenecarboxamides Using Dianion of N-Phenyl-2-[(phenylsulfonyl)methyl]-propenamide .....	128
Minoru Inagaki, Jun Hiratake, Takaaki Nishioka and Jun'ichi Oda: Kinetic Resolution of Racemic Benzaldehyde Cyanohydrin <i>via</i> Stereoselective Acetylation Catalyzed by Lipase in Organic Solvent .....	132
Kentaro Takagi: Cyanation of Iodobenzene Catalyzed by $\text{Pd}_2(\text{dba})_3 \cdot \text{CHCl}_3$ .....	136

## Reviews

Kazutoshi Ushio, Takahide Kimura, Shinro Yasui, Takehiko Goto, Satoshi Ushida, Mutsuo Goto and Atsuyoshi Ohno: Progress in the Reaction of Pyridine Nucleotide-Dependent Enzymes Part II .....	139
Kaoru Nakamura, Yasushi Kawai, Takashi Kitayama, Takehiko Miyai, Masahiko Ogawa, Yuji Mikata, Masato Higaki and Atsuyoshi Ohno: Asymmetric Reduction of Ketones with Microbes .....	157
Tadashi Okamoto, Ken Sasaki and Masahiko Tachibana: Recent Progress of Metalloporphyrin-catalyzed Oxidation and Oxygenation .....	169

**Received from the Library of Institute for Chemical Research, Kyoto University  
the following Publication(s)**

“Bulletin of Institute for Chemical Research, Kyoto University.”

Vol. 67, No. 3 (1989)

copy/copies

Institute:

Address:

Date:

Signature:

Please return this form

# POST CARD

LIBRARY  
INSTITUTE FOR CHEMICAL RESEARCH  
KYOTO UNIVERSITY  
Uji, Kyoto-Fu  
611 Japan

〒611 京都府宇治市五ヶ庄  
京都大学  
化学研究所図書室 行

京都大学化学研究所報告 第67卷 第3号

平成元年11月25日 印刷

【非売品】

平成元年11月30日 発行

京都府宇治市五ヶ庄

京都大学化学研究所

編集兼発行人

高 浪 満

〒553 大阪市福島区吉野1丁目2番7号

印刷所

日本印刷出版株式会社

電話(06)(441)6594番(代表)

印刷者

小 林 積 造