Memoirs of the FACULTY OF ENGINEERING KYOTO UNIVERSITY

VOLUME LIV PART 4
OCTOBER 1992

Published by KYOTO UNIVERSITY KYOTO, JAPAN

MEMOIRS OF THE FACULTY OF ENGINEERING KYOTO UNIVERSITY

VOLUME LIV

PART 4

OCTOBER 1992

CONTENTS

193
221
241
255
299

This memoirs is issued quarterly by the University to publish the original contributions to engineering science made or communicated by the members of the faculty. The faculty consists of following departments:

Dept. of Civil Engineering Dept. of Mechanical Engineering Dept. of Electrical Engineering Dept. of Mineral Science and Technology Dept. of Metallurgy Dept. of Industrial Chemistry Dept. of Architecture Dept. of Hydrocarbon Chemistry Dept. of Chemical Engineering Dept. of Polymer Chemistry Dept. of Electronics Dept. of Aeronautical Engineering Dept. of Nuclear Engineering Dept. of Environmental & Sanitary Engineering Dept. of Applied Mathematics and **Physics** Dept. of Precision Mechanics

Dept. of Synthetic Chemistry Dept. of Electrical Engineering, II Dept. of Metal Science and Technology Dept. of Transportation Engineering Dept. of Architectural Engineering Dept. of Information Science Dept. of Engineering Science Div. of Molecular Engineering Div. of Applied Systems Science Div. of Global Environment Engineering Ion Beam Engineering Experimental Laboratory Laboratory for Control of Environmental Micropollutants Research Laboratory of Carbonaceous Resources Conversion Technology Integrated Media Environment Experimental Laboratory Mesoscopic Meterials Research Center

All communications regarding the memoirs should be addressed to the dean of the faculty.

October 1992 Vol. LIV, Part 4 平成 4 年10月26日 印刷 平成 4 年10月30日 発行 京都大学工学部 編集兼発行者 田 刷 者 達 夫 所 大学印刷株式会社 広島市安佐北区上深川町809-5