

SCIENCE and TECHNOLOGY REPORTS of KANSAI UNIVERSITY

No.65
[MARCH. 2023]

SCIENCE and TECHNOLOGY
REPORTS of
KANSAI UNIVERSITY

No.65
[MARCH. 2023]

SCIENCE and TECHNOLOGY REPORTS of KANSAI UNIVERSITY No.65 [MARCH. 2023]

KANSAI UNIVERSITY

KANSAI UNIVERSITY

Board of Editors

Prof. Yasuo NAGAOKA ————— *Dean of the Faculty of
Chemistry, Materials and Bioengineering
Chairperson of the Board*

Prof. Naoki IKENAGA ————— *Vice Dean of the Faculty of
Environmental and Urban Engineering*

Assoc. Prof. Kazuya YAMANAKA ————— *Life Science and Biotechnology
Vice Chairperson of the Board*

Prof. Naoki MURABAYASHI ————— *Mathematics*

Assoc. Prof. Mahito YAMAMOTO ————— *Pure and Applied Physics*

Prof. Hiroshi TANI ————— *Mechanical Engineering*

Assoc. Prof. Jun TAKARADA ————— *Electrical, Electronic and
Information Engineering*

Assist. Prof. Mari MIYAJI ————— *Architecture*

Prof. Harushige KUSUMI ————— *Civil, Environmental and
Applied Systems Engineering*

Prof. Takanori MIYAKE ————— *Chemical, Energy and
Environmental Engineering*

Prof. Satoshi SAKAGUCHI ————— *Chemistry and Materials Engneering*

Exchange journal and business correspondence should be sent to the following address :
Exchange Department (STR) Kansai University Library,
3-3-35 Yamate-cho, Suita-shi, Osaka, 564-8680 JAPAN
k-kou@ml.kandai.jp

関 西 大 学
理 工 学 研 究 報 告
第 65 号 (2023)

令和 5 年 3 月13日 印刷
令和 5 年 3 月20日 発行

システム理工学部
編 集 関西大学 環境都市工学部
化学生命工学部

発 行 関 西 大 学

〒564-8680 大阪府吹田市山手町 3 丁目 3 番35号
電話 (06) 6368-1121 (大代表)
k-kou@ml.kandai.jp

印刷所 株式会社 NPCコーポレーション
大阪市北区天満 1 丁目 9 番19号

© Kansai University, 2023
Printed by NPC corporation Co., Ltd.

関 西 大 学
理 工 学 研 究 報 告

2023年 3 月

SCIENCE AND TECHNOLOGY
REPORTS
OF
KANSAI UNIVERSITY

NO. 65

MARCH 2023

PUBLISHED BY
FACULTY OF ENGINEERING SCIENCE
FACULTY OF ENVIRONMENTAL AND URBAN ENGINEERING
FACULTY OF CHEMISTRY, MATERIALS AND BIOENGINEERING
KANSAI UNIVERSITY
OSAKA, JAPAN

CONTENTS

PURE AND APPLIED PHYSICS

- Thermal Dependence of Spin-Orbit Torque-Induced Magnetization Reversal in
Permalloy Thin Film
..... Jun Fujioka, Syuta Honda, Hiroyoshi Itoh, Yuichiro Ando (1)

CIVIL, ENVIRONMENTAL AND APPLIED SYSTEMS ENGINEERING

- Real-Time Evaluations of Tunnel Faces and Predictions of Geological Conditions
Ahead of the Tunnel Face Based on Drilling Data
..... Yasuyuki Miyajima, Suguru Shirasagi, Harushige Kusumi (9)

PURE AND APPLIED PHYSICS

- Width of a Domain Wall Using a Quadratic Approximation of Magnetic Moments
..... Ryotaro Ono, Taichi Nishitani, Syuta Honda, Hiroyoshi Itoh (17)

MECHANICAL ENGINEERING

- Study on Evaluation of Wall Thinning in a Structural Member Using Lamb Waves:
Mode Separation Using the Mars Method
..... Masanori Takuma, Ken-ichi Saitoh, Yoshimasa Takahashi and
Tomohiro Sato (23)

CIVIL, ENVIRONMENTAL AND APPLIED SYSTEMS ENGINEERING

- The Influence of Cementitious Materials and Admixture on Ground Improvement
Strength Using the Jumbo-Jet Special Grouting Method
..... Wu-Te Ko (35)

PURE AND APPLIED PHYSICS

- Comparison between Experimental and Theoretical Visualization of Thermal
Convection Using the Photoelastic Effect
..... Kaito Kashu, Shoya Kurata, Zehan Gong, Tomoaki Itano (45)

