ISSN (Print) 1226-1750
ISSN (Online) 2233-6656
http://www.jmagnetics.org

Journal of Magnetics

Vol. 27, No. 1, March 2022

Contents

Comparison of Spin Seebeck Signal in $Y_3Fe_5O_{12}$ Film Measured by Joule Heating- and Laser Heating-based Measurement Systems
Phuoc Cao Van, Duc Duong Viet, Trinh Nguyen Thi, Ji-Hwan Seol, Gun-Woo Park, Jong-Ryul Jeong, Seung-Young Park, and Churl Hee Cho 1

Effect of Mn doping on the Structural, Dielectric, and Multiferroic Properties of $BiFeO_3$-$BaTiO_3$ Ceramics Fabricated by Spark Plasma Sintering
Meng Wang and Zengxu Xu 7

Investigation of Torque Ripple in an Induction Motor with Respect to Slot Number Combinations
Yongha Choo, Changhwan Kim, Gyeonghwan Yun, and Cheewoo Lee 18

An Improved and Efficient Analytical Model for Magnetic Field Calculation in Linear Permanent Magnet Machines
Baocheng Guo, Rong Guo, Hengzai Hu, Jianping Shi, and Chunmei Feng 28

First Principles Investigation on Electrically Controlled Magnetic Moments of Ultrathin Palladium Film on MgO(001)
Tran Van Quang, Hanchul Kim, and Miyoung Kim 35

Analysis of Linear Machine by Parameter Study using Equivalent Magnetic Circuit and FEA
Sungin Jeong 42

Torque Ripple according to The Number of Permanent Magnet Poles of Magnetic Gear
Eui-Jong Park and Yong-Jae Kim 51

Analysis on Seal Capacity of Magnetic Fluid Seal Using Ring Magnet
Jiawei Liu and Decai Li 56

Experiment Study and Machine Learning Prediction of Damping Performance of Ferrofluid Dynamic Vibration Absorber
Xiao Liu and Decai Li 65

Experimental Study on Divergent Magnetic Fluid Seal with Small Clearance and Double Magnetic Source
Xiaolong Yang, Chenguang Yang, and Gang Liu 72

Sealing Behavior Research on the Radial Ferrofluid Seal Structure with Oblique Teeth
Fang Yuan, Siqi Wang, Decai Li, and Long Chen 79

Continued

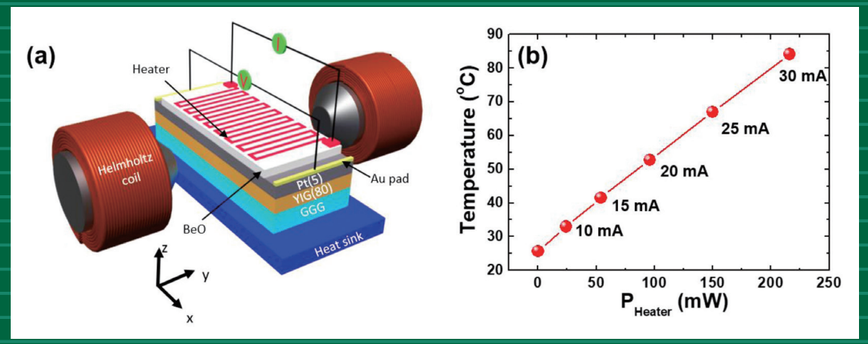
Published by
The Korean Magnetics Society
#905 KSTC, (Yeoksam-dong) 22, 7gil, Teheran-ro,
Gangnam-gu, Seoul 06130, Korea
Tel : 82-2-3452-7363, Fax : 82-2-3452-7366
e-mail : office@magnetics.or.kr, https://www.magnetics.or.kr

JOURNAL OF MAGNETICS

ISSN (Print) 1226-1750
ISSN (Online) 2233-6656
http://www.jmagnetics.org

JOURNAL OF MAGNETICS

27 (1) Vol. 27, No. 1 Pages 1–115 March 2022



Editor's Choice

Comparison of Spin Seebeck Signal in $Y_3Fe_5O_{12}$ Film Measured by Joule Heating- and Laser Heating-based Measurement Systems
(Phuoc Cao Van, Duc Duong Viet, Trinh Nguyen Thi, Ji-Hwan Seol, Gun-Woo Park, Jong-Ryul Jeong, Seung-Young Park, and Churl Hee Cho, p. 1)

27(1) 1~115, Mar. 2022

The Korean Magnetics Society

Influences of Postannealing Treatment Parameters on the Structural and Magnetic Properties of Nickel-Doped Cobalt Ferrite Synthesized by Sol-Gel Route
Sri Budiawanti, R. Amalia, D. T. Rahardjo, Suharno, B. Purnama, and D. Djuhana ····· 88

Structural and Magnetic Properties of Thin-film $ScFeO_3$
Kwang Joo Kim, Jongho Park, and Jae Yun Park ····· 96

A Novel Magnetic Flux Leakage Sensor System for Inspecting Large Diameter Pipeline
Chang Geun Heo, Young Chae Kim, Jong Ho Bae, and Gwan Soo Park ····· 100

Magnetic Characteristics of Biological Fluid in Nonlinear Thermally Radiated Blood Flow
Bilal Ahmed, Sami Ullah Khan, M. Ijaz Khan, Soumaya Gouadria, Abdul H. Hamid, Mehreen Yousaf, and M. Y. Malik ····· 106

The Korean Magnetics Society, 2021~2022

President
Young Keun Kim (Korea Univ.)

Vice Presidents
Joon Yeon Chang (KIST)
Haein Yim (Sookmyung Women's Univ.)
Jong-Ryul Jeong (Chungnam Nat'l Univ.)

Executive Board
General Affairs
Ki-Suk Lee (UNIST)
Treasurer
Myung-Hwa Jung (Sogang Univ.)
Business
Dong Hwan Kim (Star group industry)
Byoung-Chul Min (KIST)
Yong Sul Song (Amogreentech Co., Ltd.)
Kyung-Jin Lee (KAIST)
Sung Lae Cho (Univ. of Ulsan)
Jongill Hong (Yonsei Univ.)
Academic Program
Hyun Cheol Koo (KIST)
Kee Hoon Kim (Seoul Nat'l Univ.)
Woo Sang Ahn (Univ. of Ulsan College of Medicine)
Jung-Woo Yoo (UNIST)
Sug-Bong Choe (Seoul Nat'l Univ.)
Yun Yong Choi (Drivetech)

Auditors
Chul Jin Choi (KIMS)
Chan Yong Hwang (KRISS)

Editor-in-Chief
Byong-Guk Park (KAIST)

Executive Editors
Dong Hyun Kim (Chungbuk Nat'l Univ.)
Jong-Ryul Jeong (Chungnam Nat'l Univ.)
Sang Suk Lee (Sangji Univ.)

Associate Editors
Jang Young Choi (Chungnam Nat'l Univ.)
Sung Hoon Kim (Wonkwang Univ.)
Jung-Il Hong (DGIST)
Se Kwon Kim (KAIST)
Myung-Hwa Jung (Sogang Univ.)
Kyoung-Woong Moon (KRISS)
Seok Soo Yoon (Andong Nat'l Univ.)
Soong-Geun Je (Chonnam Nat'l Univ.)
Sanghoon Kim (Ulsan Univ.)
Woo Sang Ahn (Ulsan Univ.)
Gyung-Min Choi (Sungkyunkwan Univ.)
Tae-Hoon Kim (KIMS)
Kyung-Hun Shin (Chonnam Nat'l Univ.)
Jae Won Jeong (KIMS)

Editorial Board Members
David Awschalom (Univ. of Chicago, USA)
Samuel D. Bader (Argonne Nat'l. Lab., USA)
Zygmunt Bąk (Jan Długosz University, Poland)
John Chapman (Univ. of Glasgow, UK)
Sug-Bong Choe (Seoul Nat'l Univ.)
Alessandra Continenza (University of L'Aquila, ltaly)
Bernard Dieny (SPINTEC, France)
Arthur J. Freeman (Northwestern Univ., USA)
Burkard Hillebrands (Universitat Kaiserslautern, Germany)
Jisang Hong (Pukyong Nat'l Univ.)
Yang Ki Hong (Univ. of Alabama, USA)
Tae Suk Jang (Sun Moon Univ.)
Sung-Ho Jin (UC San Diego, USA)
CheolGi Kim (DGIST)
Dong Young Kim (Andong Nat'l Univ.)
Dong-Hun Kim (Kyungpook Nat'l Univ.)
Hyeong-Seok Kim (ChungAng Univ.)
Jaeyong Kim (Hanyang Univ.)
Ki Hyeon Kim (Yeungnam Univ.)
Jurgen Kirschner (Max Planck Institute, Germany)
Hyun Cheol Koo (KIST)
Kannan M. Krishnan (Univ. of Washington, USA)
Hyang-beom Lee (Soongsil Univ.)
Hyun-Woo Lee (POSTECH)
Sadamichi Maekawa (JAEA, Japan)
Jagadeesh Moodera (MIT, USA)
Tae-Hwan Noh (Andong Nat'l Univ.)
Hideo Ohno (Tohoku Univ., Japan)
Duck-Gun Park (KAERI)
Stuart Parkin (IBM, USA)
Sung-Hyon Rhim (Univ. of Ulsan)
Ivan Schuller (UC San Diego, USA)
Robert L. Stamp (Univ. of Glasgow, UK)
Mark Stiles (National Institute of Standards and Technology, USA)
Pham Duc Thang (Vietnam National Univ. in Hanoi, Vietnam)
Phan Bach Thang (Vietnam National Univ. in HoChiMinh City, Vietnam)
Young Rang Uhm (KAERI)
Ming Yue (Beijing Univ. of Technology, China)

Manuscript Editor
Sae Rok Heo (The Korean Magnetics Society)