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Session Title [OA1] Optimisation and Design 1
Date and Time June 19 (Monday) / 10:00-10:40
Place Grand Ballroom (2F, 201)
Session Chair Jan Sykulski (Univ. of Southampton, UK)

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Schuhmacher, Sebastian (1); Klaedtke, Andreas (1); Keller, Christoph (1); Ackermann, Wolfgang (2); De Gersem, Herbert (2)

1: Robert Bosch GmbH - Corporate Research; 2: TU Darmstadt

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Martin, Floran (1); Belahcen, Anouar (1,2)

1: Aalto University, Finland; 2: Tallinn University of Technology, Estonia

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RWTH Aachen University, Institute of Electrical Machines, Aachen, Germany

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1: Shenyang University of Technology, China; 2: Chungbuk National University, Korea, Republic of (South Korea)

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1: Aristotle University of Thessaloniki, Greece; 2: Omachi, Asahikawa, Japan; 3: Niigata Institute of Technology, Japan

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Place Grand Ballroom (2F, 201)

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GeePs – Génie Electrique et Electronique de Paris, France

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1: Graduate School of Computational Engineering, Technische Universität Darmstadt, Germany; 2: Institut für Theorie Elektromagnetischer Felder, Technische Universität Darmstadt, Germany; 3: BEAMS Department, Université libre de Bruxelles, Belgium; 4: Department of Electrical Engineering, EnergyVille, KU Leuven, Belgium

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Shenyang University of Technology, China, People's Republic of

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 1: University of Applied Sciences of Eastern Switzerland (HSR), Switzerland; 2: Swiss Federal Institute of Technology ETH

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 1: University of Padova, Department of Industrial Engineering (DII), 35131 Padova, Italy; 2: Consorzio RFX, 35127 Padova, Italy; 3: University of Udine, Polytechnic Department of Engineering and Architecture (DPIA), 33100 Udine, Italy

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 1: Kyungpook National University, Korea, Republic of (South Korea); 2: Dept. of Electrical Eng., Hoseo Univ., Chungnam 336-795, Republic of Korea; 3: Dept. of Mechanical and Industrial Eng., Univ. of Iowa, Iowa City, IA 52242-1527, USA

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Date and Time June 21 (Wednesday) / 09:00-10:40

Place Grand Ballroom (2F, 201)

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 1: Science Solutions International Laboratory, Inc., Japan; 2: Doshisha University, Japan

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 1: Politecnico di Torino, Dipartimento Energia, Corso Duca degli Abruzzi 24, 10129, Torino; 2: School of Information Technology and Electrical Engineering - The University of Queensland, Australia

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1: University of Pavia, Pavia, Italy; 2: Southwest Jiaotong University, Chengdu, China; 3: McGill University, Montreal, Québec, Canada; 4: University of Southampton, Southampton, UK

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1: Zhejiang University, China, People's Republic of; 2: Pierre and Marie Curie University, France

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 1: Univ. Lille, Centrale Lille, Arts et Métiers Paris Tech, HEI, EA 2697, France; 2: EDF R&D, THEMIS, 7
 Boulevard Gaspard Monge, 91120 Palaiseau, France

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 1: AIT Austrian Institute of Technology GmbH, Austria; 2: TSA Traktionssysteme Austria GmbH

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Place Grand Ballroom (2F, 201)

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 1: CERN, Geneva, Switzerland; 2: Łódź University of Technology, Łódź, Poland; 3: Technische Universität Darmstadt, Darmstadt, Germany

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Qiao, Ji; Zhang, Pengfei; Zou, Jun; Yuan, Jiansheng
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 1: IREENA, France; 2: Department of Physics, Sogang University, Seoul 121-742, Korea

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 1: Department of Electrical Engineering, Kyungpook National University, Daegu 41566, Republic of Korea; 2: Kyushu Institute of Technology Fukuoka, Japan

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1: Science Solutions International Laboratory, Inc.; 2: Faculty of Science and Engineering, Kindai University; 3: Kawasaki Heavy Industries, Ltd.; 4: Dept. Electrical Engineering, Kyoto University

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1: DataShape, Inria, France; 2: DPIA, University of Udine, Italy

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1: Department of Industrial Engineering (DII), University of Padova, Italy; 2: Polytechnic Department of Engineering and Architecture (DPIA), University of Udine, Italy

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1: North China Electric Power University, China, People's Republic of; 2: Institute of Power Transmission and Transformation Technology, China, People's Republic of; 3: Griffith University, Australia

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1: The Hong Kong Polytechnic University, Hong Kong S.A.R. (China); 2: State Power Economic Research Institute, Beijing, China

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1: Korea University, Korea, Republic of (South Korea); 2: Hyundai Heavy Industries, Korea, Republic of (South Korea)

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1: Changwon National University, Korea, Republic of (South Korea); 2: S&T Motiv, Motor R&D Center, Korea, Republic of (South Korea)

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1: Hanyang University, Korea, Republic of (South Korea); 2: Hyundai Wia, Korea, Republic of (South Korea)

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1: The Hong Kong Polytechnic University, Hong Kong; 2: Zhejiang University, China, People's Republic of

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1: Institute of Fundamentals and Theory in Electrical Engineering, Graz University of Technology, Austria; 2: Institute of Automotive Engineering, Graz University of Technology, Austria; 3: Dipartimento di Ingegneria Industriale, Università degli Studi di

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1: Peter the Great St. Petersburg Polytechnic University, Russian Federation; 2: Peter the Great St. Petersburg Polytechnic University, Russian Federation; 3: Pskovelectrosvar – a producer of high power welding machines, Pskov, Russian Federation

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1: Graduate School of Mechanical Engineering, Yonsei University; 2: School of Mechanical Engineering, Yonsei University

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Place	Rm. 103-104 (1F)
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1: Xi'an Jiaotong University, China, People's Republic of; 2: University of Technology, Sydney, Australia

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He, Haoyan; Li, Hailin; Wang, Shuhong

State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi'an Jiaotong University, 28 West Xianning Rd, Xi'an 710049, China, shwang@mail.xjtu.edu.cn

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1: Université Pierre et Marie Curie, France; 2: Institute of Microelectronics of Chinese Academy of Science, China

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1: Universidad Autonoma Metropolitana; 2: Instituto Tecnológico de Morelia; 3: Instituto Tecnológico de la Laguna; 4: Universidad Nacional Autónoma de México

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1: Chongqing University, China, People's Republic of; 2: State Grid Ningxia Power Company, Yinchuan, China; 3: Wuhan NARI Limited Company of State Grid Electric Power Research Institute, Wuhan, China

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1: Chiba Institute of Technology; 2: Group of Electrical Engineering in Paris (GeePs)

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Vibration Properties of Two-stage Magnetic-valve Controllable Reactor 140

Zhang, Pengning; Li, Lin
State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources (North China Electric Power University), China, People's Republic of

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1: Hebei University of Technology, China, People's Republic of; 2: Tianjin Polytechnic University, China, People's Republic of

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Yang, Yanju (1,2); Li, Yanhong (1,2); Xia, Zhengwu (1); Li, Yuanyuan (1,2); Sun, Wenxiu (1,2); Liu, Guoqiang (1,2)
1: Institute of Electrical Engineering, Chinese Academy of Sciences, China, People's Republic of; 2: University of Chinese Academy of Sciences, China, People's Republic of

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Gupta, Bhaawan (1,2); Ducharme, Benjamin (1); Sebald, Gael (1,2); Uchimoto, Tetsuya (2)
1: LGEF, INSA LYON, FRANCE; 2: ELYTMAX, TOHOKU UNIVERSITY, JAPAN

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Shape Optimization of the SPM Motor for Noise Reduction Based on Magnetic-structural-acoustic Coupled Analysis 148

Lim, Sunghoon; Joo, Yongwoo; Min, Seungjae
Department of Mechanical Engineering and Science, Kyoto University, Kyoto, Japan

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Takanami, Shimpei (1); Kitagawa, Wataru (1); Takeshita, Takaharu (1); Masuda, Akihiro (2); Nakashima, Masahiro (2)
1: Nagoya Institute of Technology, Japan; 2: SANKO MOLD Co., LTD, Japan

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1: Technische Universität Ilmenau, Germany; 2: West Pomeranian University of Technology Szczecin, Poland

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Finite Element Method Incorporating Coupled Magneto-Elastic Model for Magneto-Mechanical Energy Harvester 154

Ahmed, Umair; Harju, Jarmo; Poutala, Jarmo; Ruuskanen, Pekka; Rasilo, Paavo; Kouhia, Reijo

Tampere University of Technology, Finland

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LIU, Mingyong (1,2); HUBERT, Olivier (2); TANG, Zuqi (1); BOUILLAUD, Frédéric (1); MININGER, Xavier (1); BERNARD, Laurent (3)

1: GeePs, France; 2: LMT Cachan, France; 3: GRUCAD/EEL/CTC, Brazil

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Liu, Chang; Quan, Li; Zhu, Xiaoyong; Xiang, Zixuan; Fan, Deyang

School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013 China

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Osaka University, Japan

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Mo, Lihong

Huaiyin Institute of Technology, China, People's Republic of

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Kim, Hui Min; Park, Gwan Soo

Pusan National University, Korea, Republic of (South Korea)

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Yang, Xiaoguang; Jin, Shuangshuang; Xu, Linliang; Gao, Linghu; Gao, Lijing; Li, Yongjian; Ge, Manling
Hebei University of Technology, China, People's Republic of

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Ishikawa, Takeo; Tanaka, Keigo
Gunma University, Japan

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Li, Hailin (1); Yuan, Dongsheng (1); Huangfu, Youpeng (1); Feng, Hanke (1); Wang, Shuhong (1); Zhu, Jianguo (2)
1: Xi'an Jiaotong University, China, People's Republic of; 2: University of Technology, Sydney, Australia

PA-M3-25

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Research on Power Transformer Winding Deformation Under Multiple Short-Circuit Conditions Through Magnetic-Structural Coupling analysis 172

Wang, Shuang; Wang, Shuhong; Huangfu, Youpeng; Li, Hailin; Yuan, Dongsheng; Wang, Song
State Key Laboratory of Electrical Insulation and Power Equipment, Faculty of Electrical Engineering, Xi'an Jiaotong University, China, People's Republic of

Session Title	[PA-A4] Optimization and Design 2
Date and Time	June 19 (Monday) / 14:10-16:00
Place	Rm. 101 (1F)
Session Chair	Dianhai Zhang (Shenyang Univ. of Tech., China)

PA-A4-1 **Digest ID: 8**

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Kölzer, José Fabio; Bazzo, Thiago de Paula; Carlson, Renato; Sadowski, Nelson
Universidade Federal de Santa Catarina, Brazil

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MA, BO; Lei, Gang; Zhu, Jianguo; Guo, Youguang
University of Technology Sydney, Australia

PA-A4-3 **Digest ID: 410**

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Lee, Ha Jeong; Im, Sang Hyeon; Park, Gwan Soo
Pusan National University, Korea, Republic of (South Korea)

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Ho, S. L. (1); Yang, Shiyu (2)
1: The Hong Kong Polytechnic University, Hong Kong; 2: Zhejiang University, China, People's Republic of

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Niguchi, Noboru; Hirata, Katsuhiro; Kohara, Akira; Takahara, Kazuaki
Osaka University, Japan

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Stable and Efficient Magnetic Field Optimization of 18 MeV Sector Focused Cyclotron Magnet Using Bezier Curve Fitting 184

Kim, Su-Hun (1); Kwak, Chang-Seob (2); Lee, Se-Hee (1)
1: Kyungpook National University, Daegu, Republic of Korea; 2: Korea Electrotechnology Research Institute, Changwon, Republic of Korea

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Withdrawn

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Digest ID: 207

Analyzing and Weakening the Cogging Torque of Line-start Permanent Magnet Motor 186

Liu, Lin (1); Jing, Libing (1,2); Gao, Qixing (1); Luo, Zhenghao (1); Cheng, Jia (1); Lin, Ying (1); Zhang, Ting (1)
 1: China Three Gorges University, China, People's Republic of; 2: Huazhong University of Science and Technology, Wuhan, China, People's Republic of

PA-A4-9

Digest ID: 213

Enhanced Meta-model Based Optimization under Constraints using Parallel Computations 188

El Bechari, Reda (1,2); Brisset, Stéphane (1); Clénet, Stéphane (1); Mipo, Jean-Claude (2)
 1: Université Lille, Centrale Lille, Arts et Métiers ParisTech, HEI, EA 2697 - L2EP - Laboratoire d'Electrotechnique et d'Electronique de Puissance, F-59000 Lille, France; 2: Valeo Equipements Electriques Moteur, Créteil, France

PA-A4-10

Digest ID: 214

An Efficient Serial-Loop Strategy for Reliability-Based Robust Optimization of Electromagnetic Design Problems 190

Kim, Dong-Hun (1); Kang, Byungsu (1); Choi, K. K. (2)
 1: Kyungpook National University, Korea, Republic of (South Korea); 2: Dept. of Mechanical and Industrial Eng., Univ. of Iowa, Iowa City, IA 52242-1527, USA

PA-A4-11

Withdrawn

PA-A4-12

Digest ID: 229

Topological Optimization Using Basis Functions for Improvement of Rotating Machine Performances 192

Sasaki, Hidenori; Igarashi, Hajime
 Graduate School of Information Science and Technology, Hokkaido University, Japan

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Lee, Ji-Young (1); Lee, Seyeon (2); Choi, Kyeongdal (2); Kim, Woo-Seok (2)
 1: Institute for Basic Science, Korea, Republic of (South Korea); 2: Korea Polytechnic University, Korea, Republic of (South Korea)

PA-A4-14

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Watanabe, Kota; Suga, Takao; Kitabatake, Shinya
 Muroran Institute of Technology, Japan

Electromagnetic Actuation Scheme for Steering MNPs with Aggregations at Multi-Channel Vessels 196

Kafash Hoshidar, Ali (1,2); Le, Tuan-Anh (1); Yoon, JungWon (1)

1: Gyeongsang National University, Korea, Republic of (South Korea); 2: Islamic Azad University, Qazvin Branch, Qazvin (Iran)

Session Title	[PA-A5] Numerical Techniques 1
Date and Time	June 19 (Monday) / 14:10-16:00
Place	Rm. 102 (1F)
Session Chair	Stéphane Clenet (Arts et Métiers ParisTech., France)

PA-A5-1 **Digest ID: 16**

Non-Intrusive Uncertainty Quantification with Polynomial Chaos Approximations for a Stochastic Stern-Gerlach Magnet Model 198

Loukrezis, Dimitrios (1,2); Polonskij, Ilja (1); Römer, Ulrich (1,2); De Gersem, Herbert (1,2)

1: Institut für Theorie Elektromagnetischer Felder, TU Darmstadt, Germany; 2: Graduate School Computational Engineering, TU Darmstadt, Germany

PA-A5-2 **Digest ID: 26**

3-D Parallel Finite Element Method with Prismatic Edge Elements for Electromagnetic Field Analysis of IPM Motor 200

Kawase, Yoshihiro; Yamaguchi, Tadashi; Osada, Shunichi

Gifu University, Japan

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A New Divide and Conquer Method For Three-Dimensional Electrical Impedance Tomography 202

Martin, Sébastien; Choi, Charles

National Chiao Tung University, Taiwan

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A new and robust hysteresis modeling based on simple equations 204

Bastos, João Pedro Assumpção (1); Hoffmann, Kleyton (1,2); Leite, Jean Viane (1); Sadowski, Nelson (1)

1: Universidade Federal de Santa Catarina, Brazil; 2: Universidade do Oeste de Santa Catarina, Brazil

PA-A5-5 **Digest ID: 43**

Strong Coupling Method between Magnetic Field Equations and Hysteresis Model for Accurate Prediction of Core Loss in Inductive Components 206

Shimizu, Koichi (1); Furuya, Atsushi (1); Uehara, Yuji (1); Fujisaki, Jun (1); Ataka, Tadashi (1); Tanaka, Tomohiro (1); Oshima, Hirofumi (2)

1: Fujitsu Limited; 2: Fujitsu Laboratories Limited

PA-A5-6 **Digest ID: 451**

An Adaptive FEM Based on Magnetic Field Conservation Applying to Ferromagnetic Problems 208

Noguchi, So (1,2,3); Matsutomo, Shinya (4); Cingoski, Vlatko (5)

1: Hokkaido University, Japan; 2: National High Magnetic Field Laboratory; 3: Florida State University; 4: National Institute of Technology, Niihama College; 5: University "Goce Delcev" – Stip

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Digest ID: 63

A Fast Tree Algorithm for the Calculation of Electrical Field in 1.5D Streamer Discharge Simulations 210

Zhuang, Chijie (1); Zhang, Yong (2); Zeng, Rong (1)

1: Tsinghua University, China, People's Republic of; 2: Courant Institute of Mathematical Sciences, New York University

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Time Decomposition Method for the General Transient Simulation of Low-Frequency Electromagnetics 212

He, Bo; Zhou, Ping; Lu, Chuan; Chen, Ningning; Lin, Dingsheng; Rosu, Marius
Ansys, United States of America

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Withdrawn

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Digest ID: 129

Computation of Hysteresis Torque and losses in a Bearingless Synchronous Reluctance Machine 214

Belahcen, Anouar (1,2); Mukhrejee, Victor (1); Martin, Florian (1); Rasilo, Paavo (1,3)

1: Aalto University, Dept. of Electrical Engineering and Automation, Finland; 2: Tallinn University of Technology, Dept. of Electrical Engineering, Estonia; 3: Tampere University of Technology, Dept. of Electrical Engineering, Finland

PA-A5-11

Digest ID: 146

Efficient Parallel Numerical Analysis of Rotating Bodies based on Hierarchical Domain Decomposition Method 216

SUGIMOTO, Shin-ichiro (1); OGINO, Masao (2); KANAYAMA, Hiroshi (3); TAKEI, Amane (4)

1: Tokyo University Science, SUWA, Japan; 2: Nagoya University, Japan; 3: Japan Women's University, Japan; 4: University of Miyazaki, Japan

PA-A5-12

Digest ID: 185

SCSM for Calculation of Motion-Induced Eddy Currents in Isotropic and Anisotropic Conductive Objects 218

Ziolkowski, Marek (1,2); Schmidt, Reinhard (1); Petkovic, Bojana (1); Gorges, Stephan (1); Weise, Konstantin (1); Brauer, Hartmut (1)

1: Technische Universität Ilmenau, Germany; 2: West Pomeranian University of Technology Szczecin, Poland

PA-A5-13

Digest ID: 230

Parametric Design Study of Electric Motor Using Multipolar Moment Matching Method Based on Model Order Reduction 220

Paul, Sarbajit; Chang, Junghwan

Dong-A University, Korea, Republic of (South Korea)

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Digest ID: 316

Reduced Basis Finite-element Method for Electromagnetic Field Computation of Geometric Deformation Problems 222

Liu, Xiaoyu; Fu, Weinong
The Hong Kong Polytechnique University, Hong Kong S.A.R. (China)

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Digest ID: 735

A Mixed Multiscale Finite Element Method with *A* and *J* for Eddy Currents in Iron Laminates N/A

Hollaus, Karl
Technische Universität Wien, Austria

Session Title	[PA-A6] Electromagnetic Compatibility
Date and Time	June 19 (Monday) / 14:10-16:00
Place	Rm. 103 (1F)
Session Chair	József Pávó (Budapest Univ. of Tech. and Economics, Hungary)

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A Methodology to Calculate Potentials on Buried Electrodes Considering Coupling Between Conductors by the Soil 224

Gazzana, Daniel S (1,2); Dias, Guilherme A. D. (1); Tronchoni, Alex. B. (1); Leborgne, Roberto C. (1); Bretas, Arturo S. (1,3); Telló, Marcos (4)
 1: UFRGS University, Brazil; 2: Swiss Federal Institute of Technology EPFL, Switzerland; 3: University of Florida, USA; 4: State Company of Electrical Energy CEEE-D, Brazil

PA-A6-2 **Digest ID: 5**

An Improved Soil Ionization Representation to Numerical Simulation of Impulsive Grounding Systems 226

Gazzana, Daniel S (1,2); Tronchoni, Alex B. (1); Bretas, Arturo S. (1,3); Thomas, Dave W. P. (4); Christopoulos, Christos (4)
 1: UFRGS University, Brazil; 2: Swiss Federal Institute of Technology EPFL, Switzerland; 3: University of Florida, USA; 4: University of Nottingham, UK

PA-A6-3 **Withdrawn**

PA-A6-4 **Withdrawn**

PA-A6-5 **Digest ID: 84**

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de São José, Artur Nogueira (1); Adriano, Ricardo (1); Resende, Úrsula do Carmo (2); Menezes, Magno Alves de (3); Batalha, Rose Mary de Souza (3); Mologni, Juliano Fujioka (4)
 1: Federal University of Minas Gerais, Brazil; 2: Federal Center for Technological Education of Minas Gerais, Brazil; 3: Pontifical Catholic University of Minas Gerais, Brazil; 4: ESSS, Brazil

PA-A6-6 **Digest ID: 93**

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Menezes, Magno Alves de (1); Batalha, Rose Mary de Souza (1); de São José, Artur Nogueira (2); Adriano, Ricardo (2); Resende, Úrsula do Carmo (3)
 1: Pontifical Catholic University of Minas Gerais, Brazil; 2: Federal University of Minas Gerais, Brazil; 3: Federal Center for Technological Education of Minas Gerais, Brazil

PA-A6-7 **Digest ID: 113**

Calculation of space charge density in negative corona based on finite element iteration and sound pulse method 232

Liao, Rujin; Liu, Hongbo; Zhu, Qingdai; Zhao, Xueting; Liu, Kanglin; Li, Xing
 Chongqing University, China, People's Republic of

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A broadband electromagnetic homogenization method for composite materials 234

Al Achkar, Ghida (1); Pichon, Lionel (1); Benjelloun, Nabil (2); Daniel, Laurent (1)
1: GeePs (Group of Electrical Engineering, Paris), France; 2: Irseem - Esigelec, France

PA-A6-9

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FEM Computation in the Time Domain for Calibration of Electromagnetic Near-Field Scanning Technique 236

Bauer, Susanne Maria; Bíró, Oszkár; Koczka, Gergely; Gleinser, Andreas; Winkler, Gunter
TU Graz, Austria

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Withdrawn

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Digest ID: 401

Frequency-dependent Multi-conductor Transmission Line Model for Shielded Power Cable Considering Geometrical Dissymmetry 238

Huangfu, Youpeng (1,2); Wang, Shuang (1); Wang, Song (1); Li, Hailin (1); Wang, Shuhong (1)
1: Xi'an Jiaotong University, China, People's Republic of; 2: Politecnico di Milano, Italy

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Withdrawn

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Digest ID: 471

Numerical Analysis of Transient Electromagnetic Radiation Field in GIS Electronic Instrument Transformer Under VFTO Excitation 240

Zhou, Tian; Guan, Xiangyu; Kang, Bing; Li, Zipin; Shu, Naiqiu
School of Electrical Engineering Wuhan University, China, People's Republic of

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Digest ID: 505

Analysis Method of Induction Heater for Electric Vehicle 242

Yu, Seok-Hyun; Kang, Jun-Kyu; Kim, Ki-Chan
Hanbat National University, Korea, Republic of (South Korea)

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Digest ID: 725

Steerable Electromagnetic Transmission of Metal Strips on A Magnetized Ferrite Slab 244

Park, Hyun Ho (1); Ahn, Seungyoung (2)
1: The University of Suwon, Korea, Republic of (South Korea); 2: The Cho Chun Shik Graduate School for Green Transportation, KAIST, Korea, Republic of (South Korea)

Session Title [PA-A7] Bio-Electromagnetic Computation

Date and Time June 19 (Monday) / 14:10-16:00

Place Rm. 104 (1F)

Session Chair Nathan Ida (The Univ. of Akron, USA)

PA-A7-1

Digest ID: 112

Research on the Inverse Problem of Electrical Impedance Tomography Based on Improved Regularization 246

Li, Xing (1); Yang, Fan (1); Yu, Shengjie (2); Yu, Xiao (1); Gao, Bing (1); Wang, Xiaoyu (3)

1: Chongqing University, China, People's Republic of; 2: The Second Affiliated Hospital, Chongqing Medical University, China, People's Republic of; 3: Electric Power Science Research Institute of Zhejiang Electric Power Corporation, Hangzhou, China,

PA-A7-2

Digest ID: 210

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Li, Ying; Wang, Hongbin; Yu, Miao; Zhang, Shuai; Ge, Manling; Xu, Guizhi
Hebei University of Technology, China, People's Republic of

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Withdrawn

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Zhang, Shuai; Cui, Kun; Xu, Guizhi; Yan, Weili
Hebei University of Technology, China, People's Republic of

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Digest ID: 250

Sensitivity of Low-frequency Local Field Potential Power to Tissue Anisotropy and Dipole Source on a Realistic Head Model by FEM Forward Simulation N/A

Ge, Manling; Ma, Xinxin; Chen, Shenghua; Feng, Zhiguo

The Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Department of Electrical Engineering, Hebei University of Technology, Tianjin 300130, People's Republic of China

PA-A7-6

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Non-Uniform Magnetic Field Exposure Assessment Using Coupling Factors Based on 3-D Anatomical Human Model 253

Jung, Kyu-Jin; Shim, Jae-Hoon; Choi, Min-Soo; Byun, Jin-Kyu

Department of Electrical Engineering, Soongsil University, Korea, Republic of (South Korea)

Numerical Simulations and Experimental Study of Magneto-Acousto-Electrical Tomography with Plane Transducer 255

Li, Yuanyuan (1,2); Liu, Guoqiang (1,2); Xia, Hui (2); Xia, Zhengwu (2)

1: University of Chinese Academy of Sciences, China, People's Republic of; 2: Institute of Electrical Engineering, Chinese Academy of Sciences, China, People's Republic of

Session Title [PB-M1] Optimization and Design 3

Date and Time June 20 (Tuesday) / 11:00-12:50

Place Rm. 101 (1F)

Session Chair So Noguchi (Hokkaido Univ., Japan)

PB-M1-1 **Digest ID: 9**

Cogging Torque Optimization of Flux Concentrated Transverse Flux PM Disk Generator by Skewing PM Poles 257

Yan, Jianhu (1); Feng, Yi (2); Jin, Ping (3)

1: Nanjing University of Science and Technology, China, People's Republic of; 2: Nanjing Institute of Technology, Nanjing, 211167, China; 3: Hohai University, Nanjing, 211110 China

PB-M1-2 **Digest ID: 549**

Optimal Design of Thinned Array by Using Hybrid Genetic Algorithm 259

Oh, hyun-su (1); Lee, Kang-in (2); Kim, Jong Mann (3); Chung, Young-seek (4)

1: Kwangwoon University, Korea, Republic of (South Korea); 2: Kwangwoon University, Korea, Republic of (South Korea); 3: Agency for Defense Development, Daejeon 34186, Korea.; 4: Kwangwoon University, Korea, Republic of (South Korea)

PB-M1-3 **Digest ID: 187**

Global Optimization of Electromagnetic Devices using Quantum Particle Swarm Optimization with Novel Methodology 261

Rehman, Obaid Ur; Yang, Shiyong; Khan, Shafiullah

Zhejiang University, China, People's Republic of

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A Kriging-Assisted Light Beam Search Method for Multiobjective Electromagnetic Inverse Problems 263

An, Siguang (1); Yang, Shiyong (2); Mohammed, Osama A. (3)

1: China Jiliang University, China, People's Republic of; 2: Zhejiang University, China, People's Republic of; 3: Florida International University, USA

PB-M1-5 **Digest ID: 240**

Iterative Kriging-based RBDO Methods for Expensive Black-Box Models 265

Deng, Siyang; El Bechari, Reda; Brisset, Stéphane; Clénet, Stéphane

Laboratoire d'Electrotechnique et d'Electronique de Puissance, France

PB-M1-6 **Digest ID: 512**

Influence of material and geometric parameters on the sensor based on active material 267

Trang, NGUYEN (1); Stéphane, CLENET (2)

1: Laboratoire d'Electrotechnique et d'Electronique de Puissance, Lille1, France; 2: Laboratoire d'Electrotechnique et d'Electronique de Puissance, ENSAM, France

PB-M1-7

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Shape Optimization for the Magnetizing Fixture to Reduce the Torque Ripple of the Ring-type SPM Motor 269

Lim, Sunghoon (1); Min, Seungjae (2); Hong, Jung-Pyo (2)

1: Department of Mechanical Engineering and Science, Kyoto University, Kyoto, Japan; 2: Department of Automotive Engineering, Hanyang University, Seoul, Korea

PB-M1-8

Digest ID: 176

Field Analysis and Multi-objective Design Optimization of E-Core Transverse-Flux Permanent Magnet Linear Motor 271

Fu, Dongshan; Xu, Yanliang

Shandong University, China, People's Republic of

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Digest ID: 256

Shape Optimization of Deposited Layer Produced by Combined Cladding Process 273

Kotlan, Vaclav; Panek, David; Hamar, Roman; Dolezel, Ivo

University of West Bohemia, Czech Republic

PB-M1-10

Digest ID: 712

Incorporating Control Strategies into the Optimization of Synchronous AC Machines: A Comparison of Methodologies 275

Mohammadi, Mohammad; Silva, Rodrigo; Lowther, David

McGill University, Canada

PB-M1-11

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Performance of Quasi-Newton Method for Estimation of Relative Permittivity in 1-D Inverse Scattering Problem 277

Tsuburaya, Tomonori (1); Meng, Zhiqi (1); Okamoto, Yoshifumi (2); Wakao, Shinji (3)

1: Fukuoka University, Japan; 2: Hosei University, Japan; 3: Waseda University, Japan

PB-M1-12

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Pole Shape Optimization for Radiation Resistant Quadrupole Magnets of the SIS-100 Accelerator 279

Kalimov, Alexander (1); Leibrock, Hanno (2); Muehle, Carsten (2); Nalimov, Pavel (1)

1: St. Petersburg State Polytechnic University, Russian Federation; 2: GSI Helmholtzzentrum für Schwerionenforschung, Germany

PB-M1-13

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Distributed Cooperative Particle Swarm Optimization Algorithm For Electromagnetic Mechanisms Optimization 281

Xuerong, Ye (1); Hao, Chen (1); Huimin, Liang (1); Xinjun, Chen (2); Jiabin, You (1)

1: Harbin Institute of Technology; 2: SHANXI QUNLI ELECTRIC CO.LTD

Design, Analysis and Experimental Validation of Permanent Magnet Synchronous Motor for Articulated Robot Applications 283

Hong, Do-Kwan (1,2); Hwang, Wook (2); Lee, Ji-Young (1,2); Woo, Byung-Chul (2); Kang, Do-Hyun (2)

1: University of Science & Technology, Korea, Republic of (South Korea); 2: Korea Electrotechnology Research Institute, Korea, Republic of (South Korea)

Session Title	[PB-M2] Optimization and Design 4
Date and Time	June 20 (Tuesday) / 11:00-12:50
Place	Rm. 102 (1F)
Session Chair	Katsumi Yamazaki (Chiba Inst. of Tech., Japan)

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Zhang, Yue (1); Cao, Wenping (2); McLoone, Sean (1)
1: Queens University Belfast, United Kingdom; 2: Aston University, United Kindom

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Yoo, Chung-Hee
Agency for Defense Development, Korea, Republic of (South Korea)

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Itoh, Keiichi (1); Igarashi, Hajime (2)
1: Akita National College of Technology, Japan; 2: Graduate School of Information Science and Technology, Hokkaido University

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Farrok, Omar (1); Islam, Md. Rabiul (2); Zhu, Jianguo (3)
1: Ahsanullah University of Science & Technology, Dhaka-1208, Bangladesh.; 2: Rajshahi University of Engineering & Technology, Rajshahi-6204, Bangladesh.; 3: University of Technology Sydney, New South Wales 2007, Australia

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Coelho, Leandro dos Santos (1,2); Pierezan, Juliano (2); Batistela, Nelson Jhoe (3); Leite, Jean Viane (3)
1: Industrial and Systems Eng. Grad. Program (PPGEPS), Pontifical Catholic University of Parana, Curitiba, PR, Brazil; 2: Department of Electrical Engineering, Federal University of Parana (UFPR), Curitiba, PR, Brazil; 3: GRUCAD-EEL-CTC, Federal Universit

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A Segmented Brushless Doubly-Fed Generator for Wind Power Application 295

Jiang, Yongjiang; Zhang, Jianzhong; Li, Tianyi
Southeast University, China, People's Republic of

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Heya, Akira (1); Hirata, Katsuhiko (1); Niguchi, Noboru (1); Yoshimoto, Takamichi (2); Ota, Tomohiro (2)
1: Osaka University, Japan; 2: Panasonic Corporation, Japan

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Pseudo-sensorless Control of Permanent-magnet Synchronous Motor Based on Linear Hall-effect Sensor Signal 299

Lee, Seung-Tae; Hur, Jin
Incheon National University, Korea, Republic of (South Korea)

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Reconstruction of Stress Corrosion Cracking Based on Multi-Frequency Eddy Current Testing Signals Using Genetic Algorithm 301

Wang, Li (1); Chen, Zhenmao (2); Wang, Xiaowei (2)
1: Xi'an University of Posts and Telecommunications, China, People's Republic of; 2: State Key Laboratory for Strength and Vibration of Mechanical Structures, Xi'an Jiaotong University, Xi'an, 710049, China

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Huaiyin Institute of Technology, China, People's Republic of

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Starting Performance Improvement of Line-Start Permanent-Magnet Synchronous Motor Using Composite Solid Rotor 305

Yan, Bo; Wang, Xiuhe; Yang, Yubo
Shandong University, China, People's Republic of

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Zhang, Bo; Yan, Ning
Shenyang University of Technology, China, People's Republic of

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Date and Time	June 20 (Tuesday) / 11:00-12:50
Place	Rm. 103 (1F)
Session Chair	Joao Pedro Assumpcao Bastos (Univ. Federal de Santa catarina, Brazil)

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Equivalent Complex Permeability for Soft Magnetic Composites Application to Transformer 309

REN, Xiaotao (1); Corcolle, Romain (1,2); Daniel, Laurent (1)
1: Group of electrical engineering-Paris; 2: NYU Shanghai

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Li, Yafang; Huang, Wenmei; Wang, Bowen; Zhao, Ran
Key Laboratory of Electro-Magnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin 300130, China

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1: GREEN, Université de Lorraine, 54506 Vandoeuvre-lès-Nancy, France; 2: University Grenoble Alpes / CNRS, G2Elab, 38042 Grenoble, France; 3: Group of electrical engineering - Paris (GeePs), CNRS UMR 8507, CentraleSupélec, UPSud, UPMC, Gif-sur-Yvette, Fra

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Gupta, Bhaawan (1,2); Ducharne, Benjamin (1); Sebald, Gael (1,2); Uchimoto, Tetsuya (2)
1: LGEF, INSA LYON, FRANCE; 2: ELYTMAX, TOHOKU UNIVERSITY JAPAN

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Zhang, Changgeng (1); Li, Yongjian (1); Yang, Qingxin (2); Zhu, Jianguo (3)
1: Hebei University of Technology; 2: Tianjin Polytechnic University; 3: University of Technology Sydney

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Xu, Weijie (1); Duan, Nana (1); Li, Yongjian (2); Wang, Shuhong (1); Guo, Youguang (3); Zhu, Jianguo (3)
1: Xi'an Jiaotong University, China, People's Republic of; 2: Hebei University of Technology, China, People's Republic of; 3: University of Technology Sydney, Australia

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1: Graduate School of Engineering, Kyoto University; 2: Mitsubishi Electric Corporation

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Song, Hye Eun; Im, Sang Hyeon; Park, Gwan Soo
Pusan National University, Korea, Republic of (South Korea)

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Li, Wei (1); Fu, Weinong (2); Koh, Chang-Seop (3)
1: Tongji University, China; 2: The Hong Kong Polytechnic University, China; 3: Chungbuk National University, Korea, Republic of (South Korea)

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An Efficient Identification and Implementation of Preisach-Stoner-Wohlfarth Vector Hysteresis Model 327

Liu, Lei; Fu, W.N.
The Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

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Comprehensive Improvement of Temperature Dependent Jiles-Atherton Model Utilizing Variable Parameter Set 329

Zhang, Dianhai (1); Jia, Mengfan (1); Ren, Ziyang (1); Zhang, Yanli (1); Koh, Chang-Seop (2)
1: Shenyang University of Technology, China; 2: Chungbuk National University, Korea, Republic of (South Korea)

Session Title	[PB-M4] Novel Computational Methods for Machines and Devices 1
Date and Time	June 20 (Tuesday) / 11:00-12:50
Place	Rm. 104 (1F)
Session Chair	Maurizio Repetto (the Politecnico di Torino, Italy)

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Magnetic field continuity conditions in finite element analysis 331

Lefevre, Yvan; Henaux, Carole; Llibre, Jean-François
LAPLACE, University of Toulouse, CNRS, France

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A Novel 2-Dimensional Analysis Method considering Axial Flux Leakage in Spoke-Type Permanent Magnet Machines 333

Seo, Jung-Moo (1); Ro, Ah-Reum (1); Jung, Hyun-Kyo (2)
1: Korea Electronics Technology Institute, Korea, Republic of (South Korea); 2: Seoul National University, Korea, Republic of (South Korea)

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Kim, Byungtaek
Kunsan National University, Korea, Republic of (South Korea)

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Xiao, Yang (1); Zhou, Libing (1); Liu, Jianjun (1,2); Wang, Jin (1); Ma, Yiming (1)
1: Huazhong University of science and technology; 2: Dongfang Electric Machinery Co., Ltd, Dongfang Electric Corporation

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Zhang, Deng-Xu; Wang, Xiu-He; Wang, Dao-Han; Du, Xing-Fei
Shandong University, China, People's Republic of

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Field-Circuit Analysis of Torque Pulsations of an Induction Machine under Inter-Turn Short Circuit 341

Pietrowski, Wojciech; Górný, Konrad
Poznan University of Technology, Poland

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Cho, Han-wook (1); Yoon, Andy (2); Renner, Nathaniel (2); Haran, Kiruba (2)

1: Chungnam National University, Korea, Republic of (South Korea); 2: University of Illinois at Urbana-Champaign

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Rotor Induced Eddy Current Loss in Rectangular Bar Wave Windings of Permanent Magnet Electrical Machines for EV/HEVs 345

Fan, Xinggang; Qu, Ronghai; Li, Dawei; Wang, Cong; Li, Jian; Huo, Yongsheng

Huazhong University of Science and Technology, Wuhan, China

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Torque Analysis of a Novel Radial Flux Movable Stator Permanent Magnet Eddy-Current Coupling 347

Li, Yibo; Lin, Heyun; Yang, Hui; Wang, Haitao; Fang, Shuhua

Southeast University, China, People's Republic of

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Withdrawn

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Digest ID: 693

Demagnetization Investigation for Partitioned Rotor Permanent Magnet Flux Switching Machine by Transient Co-simulation Approach 349

Fan, Deyang; Zhu, Xiaoyong; Quan, Li; Xiang, Zixuan

Jiangsu University, China, People's Republic of

Session Title [PB-A5] Optimization and Design 5
Date and Time June 20 (Tuesday) / 14:10-16:00
Place Rm. 101 (1F)
Session Chair To be Announced

PB-A5-1 **Digest ID: 22**

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Zhang, Yue (1); Cao, Wenping (2); McLoone, Sean (1)
 1: Queens University Belfast, United Kingdom; 2: Aston University, United Kindom

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A Permanent Magnet Brushless Doubly-Fed Generator with Segmented Structure 353

Jiang, Yongjiang; Zhang, Jianzhong; Li, Tianyi
 Southeast University, China, People's Republic of

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Modeling and Analysis of Hybrid Permanent Magnet Type Bearingless Motor 355

zhang, tao
 Huaiyin Institute of Technology, China, People's Republic of

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Dual Rotor Flux-Switching Permanent Magnet Machine with drum winding 357

Kwon, Jung-Woo; Kwon, Byung-il
 Hanyang University, Korea, Republic of (South Korea)

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Nakajima, Atsushi; Hirata, Katsuhiko; Niguchi, Noboru; Kato, Masayuki
 Osaka University, Japan

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Mo, Lihong
 Huaiyin Institute of Technology, China, People's Republic of

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Xu, Guorui; Hao, Xiajing; Hu, Yiping; Zhan, Yang; Zhao, Haisen
North China Electric Power University, China, People's Republic of

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Parametric Design Analysis of Magnetic Sensor Based on Model Order Reduction and Reliability-based Design Optimization 365

Paul, Sarbajit (1); Rajan, Arvind (2); Chang, Junghwan (1); Kuang, Ye Chow (2); Ooi, Melanie Po-Leen (3)
1: Dong-A University, Korea, Republic of (South Korea); 2: Monash University, Malaysia; 3: Heriot-Watt University Malaysia

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Design of High Torque Density Ferrite Permanent Magnet Motor 367

Jeong, Jae-Sik (1); Sim, Jae-Han (1); Kim, Hae-Joong (2); Hong, Jung-Pyo (1)
1: Hanyang University, Korea, Republic of (South Korea); 2: Korea Testing Certification, Rotating Machinery Center, Gyeonggi 692-8, Korea

PB-A5-10

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Dynamic Strength Calculation of Power Transformer Windings under Multiple Impact Conditions 369

Yan, Ning; Li, Wei; Zhang, Bo
Shenyang University of Technology, China, People's Republic of

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Design of High efficient Motor for Personal Mobility by Pole/Slot Combinations 371

Um, Dae Yong; Joo, Jae Deuk; Kim, Jeong Sik; Im, Sang Hyeon; Park, Gwan Soo
School of Electrical and Computer Engineering, Pusan National University, Busan 46241, Korea, Republic of (South Korea)

PB-A5-12

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Multiple Level Set Method for Optimal Design of Nonlinear Magnetostatic System 373

Seo, Kyung Sik; Lee, Kang Hyouk; Park, Il Han
Sungkyunkwan University, Korea, Republic of (South Korea)

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Coelho, Leandro dos Santos (1); Pierezan, Juliano (2); Da Luz, Mauricio V. Ferreira (3); Leite, Jean Viane (3)
1: Industrial and Systems Eng. Grad. Program (PPGEPS), Pontifical Catholic University of Parana, Curitiba, PR, Brazil; 2: Department of Electrical Engineering, Federal University of Parana (UFPR), Curitiba, PR, Brazil; 3: GRUCAD/UFSC, Brazil

A New Topology Optimization Methodology Based on Constraint Maximum-Weight Connected Graph Theorem and Support Vector Machine 377

Xia, Meng (1); Yang, Shiyu (1); Ho, S. L. (2)

1: Zhejiang University, China, People's Republic of; 2: The Hong Kong Polytechnic University, Hong Kong

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Date and Time June 20 (Tuesday) / 14:10-16:00

Place Rm. 102 (1F)

Session Chair To be Announced

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Numerical Analysis and Experiments on the Electromechanical Behavior of Wired-Shape Conducting Particles 379

Techaumnat, Boonchai (1); Huynh, Viet Quoc (2); Hidaka, Kunihiro (3)
 1: Chulalongkorn University, Thailand; 2: Ho Chi Minh City University of Technology; 3: University of Tokyo

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TITTARELLI, Roberta (1); LE MENACH, Yvonnick (1); PIRIOU, Francis (1); CREUSE, Emmanuel (1); NICAISE, Serge (2); DUCREUX, Jean-Pierre (3)
 1: University of Lille, France; 2: University of Valenciennes; 3: EDF R&D, France

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yang, Fan (1); Gao, Bing (1); zhang, Songyang (2); yao, Degui (2); kou, Xiaokuo (2); liu, Zehui (2)
 1: ChongQing University, China, People's Republic of; 2: State Grid Henan Electric Power Corporation Research Institute, Henan Province

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Lean complementarity for non-linear magnetostatics 385

Kapidani, Bernard; Specogna, Ruben
 DPIA, University of Udine, Italy

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Iterative solution of eddy current problems on polyhedral meshes 387

Bettini, Paolo (1); Specogna, Ruben (2); Passarotto, Mauro (2)
 1: Department of Industrial Engineering (DII), University of Padova, Italy; 2: Polytechnic Department of Engineering and Architecture (DPIA), University of Udine, Italy

PB-A6-6 **Digest ID: 220**

A new finite element approach for electric field computation at the surface of overhead transmission line conductors 389

Farah, Arthur Araujo Maia (1); Afonso, Marcio Matias (2); Vasconcelos, João Antônio de (1); Schroeder, Marco Aurélio de Oliveira (3)
 1: Federal University of Minas Gerais, Brazil; 2: Federal Center for Technological Education of Minas Gerais, Brazil; 3: Federal University of São João del-Rei, Brazil

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Synthesis of Equivalent Circuit of Wireless Power Transfer Device Using Homogenization-based FEM 391

Otomo, Yoshitsugu; Sato, Yuki; Fujita, Shogo; Igarashi, Hajime
Hokkaido University, Japan

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Improvement of the Finite Element Analysis of 3D, Nonlinear, Periodic Eddy Current Problems Involving Voltage Driven Coils under DC Bias 393

Plasser, Rene (1); Koczka, Gergely (2); Biro, Oszkar (1)
1: IGTE TU Graz, Austria; 2: Transformers Weiz, Siemens Inc, Austria

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Improved efficiency and accuracy using duality in hybrid boundary element-surface impedance boundary condition formulation. 395

Freschi, Fabio; Giaccone, Luca; Repetto, Maurizio
Politecnico di Torino, Italy

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Digest ID: 349

Magnetic Force Analysis in a Gapped-Core Reactor Model under Harmonic Magnetizations by Efficient Frequency-Domain Decomposition 397

Zhao, Xiaojun (1); Du, Haiquan (1); Cheng, Zhiguang (2); Forghani, Behzad (3); Wang, Gang (1); Liu, Lanrong (2)
1: North China Electric Power University, China, People's Republic of; 2: Institute of Power Transmission and Transformation Technology, China, People's Republic of; 3: Infolytica Corporation, Canada

PB-A6-12

Digest ID: 366

Efficient Preconditioners for Galerkin Fast Multipole Boundary Element Method for 3D Electrostatic Field 399

Shi, Yuxin; Wang, Zezhong
North China Electric Power University, China, People's Republic of

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Magnetic Power Loss Estimation in Coaxial Magnetic Gears 401

Filippini, Mattia (1); Alotto, Piergiorgio (1); Bonisoli, Elvio (2); Ragusa, Carlo (3); Repetto, Maurizio (3); Vigliani, Alessandro (2)
1: Dept. of Industrial Engineering, University of Padova; 2: DIMEAS-Politecnico di Torino, Italy; 3: DENERG-Politecnico di Torino, Italy

PB-A6-14

Digest ID: 385

Parallel Solving of 3D Eddy Current Losses in Large Transformer Based on Element by Element Method 403

Wu, Dongyang (1,2); Yan, Xiuke (1); Tang, Renyuan (1); Xie, Dexin (1)
1: Shenyang University of Technology, China, People's Republic of; 2: Liaoning Efacec Electrical Equipment.,LTD,China, People's Republic of

Session Title	[PB-A7] Numerical Techniques 2
Date and Time	June 20 (Tuesday) / 14:10-16:00
Place	Rm. 103 (1F)
Session Chair	Kazuhiro Muramatsu (Chiba Univ., Japan)

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Non-linear Eigenmode Computations for Superconducting Cavities with a Surface Impedance Condition 405

Marsic, Nicolas; Ackermann, Wolfgang; De Gersem, Herbert
Technische Universität Darmstadt

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Low-rank tensor decompositions for high dimensional uncertainty quantification in electromagnetic field problems 407

Loukrezis, Dimitrios (1,2); Römer, Ulrich (1,2); De Gersem, Herbert (1,2)
1: Institut für Theorie Elektromagnetischer Felder, TU Darmstadt, Germany; 2: Graduate School Computational Engineering, TU Darmstadt, Germany

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The Impact of Spatial Uncertainties in the Magnetic Reluctivity on the Field Quality of a Combined Function Magnet 409

Jankoski, Radoslav (1,2); Römer, Ulrich (1,2); Schöps, Sebastian (1,2)
1: Institut für Theorie Elektromagnetischer Felder; 2: Graduate School of Excellence Computational Engineering

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Compensation Strategy of the Numerical Analysis in Frequency Domain on Induction Motor considering Magnetic Flux Saturation 411

Park, Gyeong-Jae (1); Lee, Ji-Han (1); Seo, SangHyeok (1); Kim, Yong-Jae (2); Jung, Sang-Yong (1)
1: Sungkyunkwan University, Korea, Republic of (South Korea); 2: Chosun University, Korea, Republic of (South Korea)

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A Remesh-free Finite-element Method for Large Geometrical Variations and its Application to Electric Machine Design 413

Liu, Xiaoyu; Fu, Weinong
The Hong Kong Polytechnique University, Hong Kong S.A.R. (China)

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Eddy Current Analysis of Three-Phase Transformer Made of Grain-Oriented Electrical Steel Sheets Using 3-D Parallel FEM 415

Kawase, Yoshihiro; Yamaguchi, Tadashi; Murashita, Masaya
Gifu University, Japan

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Digest ID: 331

Design and Analysis of a Novel Inductor Motor with Auxiliary Permanent Magnet Excitation 417

Fu, Xinghe; Wang, Jianhao; Liu, Kai; Lin, Mingyao
Southeast University, People's Republic of China,

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Digest ID: 387

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du, xuelong; zhang, pengfei; zou, jun; yuan, jiansheng
Tsinghua University, China, People's Republic of

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Digest ID: 391

Application of Improved H-matrices in Micromagnetic Simulations 421

Ida, Akihiro (1); Ataka, Tadashi (2); Takahashi, Yasuhito (3); Mifune, Takeshi (4); Iwashita, Takeshi (5); Furuya, Atsushi (2)
1: The University of Tokyo; 2: Fujitsu Limited; 3: Doshisha University; 4: Kyoto University; 5: Hokkaido University

PB-A7-10

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Data-Driven Model Order Reduction for magnetostatic problem coupled with circuit equations 423

Pierquin, Antoine (1,2); Henneron, Thomas (1,2); Clénet, Stéphane (1,3)
1: L2EP, France; 2: Univ. Lille; 3: Arts et Métiers Paris Tech

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A Novel Method for Transmission Line Current Reconstruction in Power Grid 425

Zhao, Gen (1); Hu, Jun (1); Ouyang, Yong (1); Wang, Zhongxu (1); Wang, Shan Xiang (2); He, Jinliang (1)
1: Tsinghua University, China, People's Republic of; 2: Stanford University, USA

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Design and Analysis Method of Alternating Rotor Core for Concentrated Flux-Type IPMSM 427

Jung, Kyung-Tae (1); Jung, Jae-Woo (2); Yoon, Myung-Hwan (1); Hong, Jung-Pyo (1)
1: Hanyang University, Korea, Republic of (South Korea); 2: Hyundai Mobis, Korea, Republic of (South Korea)

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A Novel Remesh-Free Method based on Finite Element Method for Electromagnetic Devices with Rotation or Translation 429

Zhang, Xiu (1,2); Zhang, Xin (1,2)
1: Tianjin Normal University, China, People's Republic of; 2: Tianjin Key Laboratory of Wireless Mobile Communication and Wireless Power Transmission, Tianjin Normal University

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Acoustic Inhomogeneity in Magnetoacoustic tomography with Magnetic Induction based on Split Bregman Methods 431

Zhang, Shuai; Li, Wenlong; Yang, Hongshuang; Xu, Guizhi
HEBEI UNIVERSITY OF TECHNOLOGY, China, People's Republic of

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An Improved XFEM for Field Analysis of Multilayer HTS Tapes with Multiple Nearby Geometrical Interfaces 433

Duan, Nana (1); Xu, Weijie (1); Wang, Shuhong (1); Zhu, Jianguo (2)
1: Xi'an Jiaotong University, China, People's Republic of; 2: University of Technology, Sydney, Australia

Session Title	[PB-A8] Wave Propagation 1
Date and Time	June 20 (Tuesday) / 14:10-16:00
Place	Rm. 104 (1F)
Session Chair	Sandor Bilicz (Budapest Univ. of Tech, and Economics, Hungary)

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A Statistical Study of DORT method for Locating Soft Faults in Complex Wire Networks 435

Kafal, Moussa (1); Benoit, Jaume (1); Cozza, Andrea (2)

1: CEA, LIST, 91191 Gif sur Yvette CEDEX, France; 2: Group of Electrical Engineering - Paris (GeePs), CentraleSupélec, Université Paris-Saclay, 91192 Gif-sur-Yvette CEDEX, France

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Fujita, Yoshihisa (1); Ikuno, Soichiro (2); Toru, Tsujimura (3); Kubo, Shin (3,4); Nakamura, Hiroaki (3,4)

1: National Institute of Technology, Hakodate College, Japan; 2: School of Computer Technology, Tokyo University of Technology, Japan; 3: National Institute of Fusion Science, National Institute of Natural Sciences, Japan; 4: Department of Energy Engineer

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Magnetic resonator design in a VHF range using a systematic design approach 439

Shin, Hyundo (1); Yoo, Jeonghoon (2)

1: Graduate School of Mechanical Engineering, Yonsei University, Korea, Republic of (South Korea); 2: School of Mechanical Engineering, Yonsei University, Korea, Republic of (South Korea)

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Implementation of Microwave Simulation at Dispersive Material in Dataflow Architecture FDTD Dedicated Computer 441

Kawaguchi, Hideki (1); Matsuoka, Shun-suke (2)

1: Muroran Institute of Technology, Japan; 2: National Institute of Technology, Asahikawa College

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Tractable Bayesian Learning for Automated Design of Electromagnetic Structures 443

Patel, Ramesh; Roy, Kallol; Choi, Jaesik; Han, Ki Jin

Ulsan National Institute of Science and Technology, Korea, Republic of (South Korea)

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Hebei University of Technology, China

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1: HSR University of Applied Sciences, Switzerland; 2: Comet AG, Switzerland

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Travassos, X. Lucas (1); Queiroz, Idalmir (2); Fontgalland, Glauco (3); Dantas, Josiane (4)
1: Federal University of Santa Catarina, Brazil; 2: Federal University of Semiárido, Brazil; 3: Federal University of Campina Grande, Brazil; 4: Manufacturing and Technology Integrated Campus, Brazil

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1: Asahikawa, Japan; 2: Niigata Institute of Technology, Japan; 3: Aristotle University of Thessaloniki

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1: Institute of Microelectronics, Chinese Academy of Sciences, China; 2: Beijing Key Laboratory of 3D & Nano IC Electronic Design Automation Technologies, Beijing, China; 3: University of Chinese Academy of Sciences, Beijing, China; 4: Sorbonne Université

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Xi'an JiaoTong University, China, People's Republic of

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1: University of Miyazaki, Japan; 2: Nagoya University, Japan; 3: Tokyo University of Science, Japan

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1: Department of Mechanical Engineering and Science, Kyoto University, Kyoto, Japan; 2: Department of Automotive Engineering, Hanyang University, Seoul, Korea

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1: Panasonic Corporation, Japan; 2: Osaka University, Japan

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1: Pusan National University, Korea, Republic of (South Korea); 2: Taeyang Electric Corporation, Korea, Republic of (South Korea)

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School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013 China

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Zhang, Xin (1,2); Zhang, Xiu (1,2)
1: Tianjin Normal University, China, People's Republic of; 2: Tianjin Key Laboratory of Wireless Mobile Communication and Wireless Power Transmission, Tianjin Normal University

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1: Seoul National University, Seoul, Korea, Republic of (South Korea); 2: Chung-Ang University, Seoul, Korea, Republic of (South Korea)

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Karban, Pavel; Panek, David; Kotlan, Vaclav; Dolezel, Ivo

University of West Bohemia, Czech Republic

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1: Hanyang University, Korea; 2: Korea Research Institute Ships and Ocean Engineering, Korea

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Hanyang University, Korea, Republic of (South Korea)

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1: Hanyang University, Korea, Republic of (South Korea); 2: Keimyung University, Korea, Republic of (South Korea); 3: Korea National University of Transportation, Korea, Republic of (South Korea)

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Yang, Wenjia; Yang, Shiyu

Zhejiang University, China, People's Republic of

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Kanayama, Hiroshi (1); Ogino, Masao (2); Sugimoto, Shin-ichiro (3)
 1: Japan Women's University, Japan; 2: Nagoya University, Japan; 3: Tokyo University of Science, Suwa, Japan

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 1: Faculty of Science and Engineering, Kindai University; 2: Science Solutions International Laboratory, INC.; 3: Kawasaki Heavy Industries, Ltd.; 4: Dept. Electrical Engineering, Kyoto University

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 Dona-A University, Korea, Republic of (South Korea)

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GRUCAD - Universidade Federal de Santa Catarina, Brazil

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Tecnológico Nacional de México, Campus Laguna, Mexico

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Schöps, Sebastian (1); Niyonzima, Innocent (2); Clemens, Markus (3)
1: Technische Universität Darmstadt, Germany; 2: Columbia University; 3: Bergische Universität Wuppertal

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Tao, Ruixiang; Wang, Zezhong
North China Electric Power University, China, People's Republic of

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North China Electric power university, China, People's Republic of

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State Key Laboratory of Electrical Insulation and Power Equipment, Faculty of Electrical Engineering, Xi'an Jiaotong University, China, People's Republic of

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Tang, Zuqi

GeePs – Génie Electrique et Electronique de Paris, France

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Place	Rm. 103-104 (1F)
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Superczynska, Paulina; Stepien, Slawomir; Stranz, Artur
Poznan University of Technology, Poland

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Korea Advanced Institute of Science and Technology, Korea, Republic of (South Korea)

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Li, Yang (1); Zhu, Lihua (2); Zhu, Jianguo (3)
1: Tianjin Polytechnic University (TJPU), China, China, People's Republic of; 2: Tianjin Polytechnic University (TJPU), China, China, People's Republic of; 3: Faculty of Engineering and Information Technology, University of Technology Sydney, Australia

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Antunes Oliveira Leite, Mateus (1,2); Delinchant, Benoit (1); Guichon, Jean-Michel (1); Vasconcelos, João Antônio (2)
1: G2Elab, France; 2: Evolutionary Computation Laboratory, Brazil

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Lu, Chuan; Zhou, Ping; He, Bo
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Shenyang University of Technology, China, People's Republic of

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The University of Akron, United States of America

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1: Chongqing University, China, People's Republic of; 2: State Grid Henan Electric Power Corporation Research Institute, China, People's Republic of; 3: State Grid Zhejiang Electric Power Company Metering Center, China, People's Republic of

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University of Tehran, Iran, Islamic Republic of

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Moro, Federico; Alotto, Piergiorgio; Bettini, Paolo; Voltolina, Dimitri; Torchio, Riccardo
Dipartimento di Ingegneria Industriale, Università degli Studi di Padova, Italy

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Schöbinger, Markus; Schöberl, Joachim; Hollaus, Karl
Technische Universität Wien, Austria

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Federal Center of Technological Education of Minas Gerais, Brazil

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Zhu, Changqing (1); Wang, Xiuhe (1); Yang, Yubo (1); Tang, Xu (2)
1: Shandong University, China, People's Republic of; 2: Qingdao Technological University, China, People's Republic of

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D'Angelo, Laura A. M.; De Gersem, Herbert
Technische Universität Darmstadt, Germany

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MAKONG, LUDOVIC (1,2); KAMENI, ABELIN (1); BOUILLAULT, FREDERIC (1); QUEVAL, LOIC (1); MASSON, PHILIPPE (2)
1: GeePs - Group of electrical engineering - Paris; 2: University of Houston, Houston

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Gao, Yanhui (1); Fujiki, Takuya (1); Dozono, Hiroshi (1); Muramatsu, Kazuhiro (1); Guan, Weimin (2); Yuan, Jiabin (2); Tian, Cuihua (2); Chen, Baichao (2)
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Université Grenoble Alpes, France

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Yamazaki, Katsumi; Sakamoto, Yuto
Chiba Institute of Technology

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Li, Yinan; Fahimi, Babak
University of Texas at Dallas, United States of America

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Bontinck, Zeger (1,2); Lass, Oliver (3); Schöps, Sebastian (1,2); De Gersem, Herbert (2); Ulbrich, Stefan (3)
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Hebei University of Technology, China, People's Republic of

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Wuhan University, China, People's Republic of

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University of West Bohemia, Czech Republic

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UFMG, Brazil

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University of Hanbat National, Korea, Republic of (South Korea)

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Baumgartner, Paul (1); Bauernfeind, Thomas (1); Bíró, Oszkár (1); Hackl, Andreas (2); Magele, Christian (1); Renhart, Werner (1); Torchio, Riccardo (3)
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Lee, Jae-Kwang (1); Lee, Ki-Doek (2)
1: Hanyang University, Korea, Republic of (South Korea); 2: Intelligent Mechatronics Research Center, Korea Electronics Tehnology Institute, Republic of Korea

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HWANG, KYU YUN; KWON, BYUNG IL
Hanyang University, Korea, Republic of (South Korea)

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Liu, Huai cong (1); Kim, Sol (2); Lee, Ho Joon (3)
1: Hanyang UNIV., Korea, Republic of (South Korea); 2: Yuhan University.,Korea, Republic of (South Korea); 3:
Institute of Science and Technology.,Korea, Republic of (South Korea)

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Sim, Jae-Han; Jung, Kyung-Tae; Hwang, Sung-Woo; Hong, Jung-Pyo
Hanyang University, Korea, Republic of (South Korea)

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Date and Time June 21 (Wednesday) / 14:10-16:00
Place Rm. 102 (1F)
Session Chair Chang-Eob Kim (Hoseo Univ., Korea)

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OKAMOTO, Yoshifumi (1); HOSHINO, Reona (2); WAKAO, Shinji (2); TSUBURAYA, Tomonori (3)
 1: Hosei University, Japan; 2: Waseda University, Japan; 3: Fukuoka University, Japan

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Seol, Hyun-Soo; Lee, Ju
 Hanyang University, Korea, Republic of (South Korea)

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Fang, Hongwei; Chen, Hongxu
 Tianjin University, China, People's Republic of

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 University of Tehran, Iran, Islamic Republic of

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Li, Nan (1); Luo, Chao (2); Liu, Shengping (3); Li, Ye (2)
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Lai, Junquan; Li, Jian; Qu, Ronghai
 Huazhong University of Science and Technology, China, People's Republic of

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Kim, Hyungwoo (1); Hyun, Jaeyub (2); Wang, Semyung (1)

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Lee, Jiyoung (1,2); Hong, Dokwan (1,2); Ann, Minhyuk (2); Woo, Byungchul (2)

1: University of Science and Technology, Korea, Republic of (South Korea); 2: Korea Electrotechnology Research Institute, Korea, Republic of (South Korea)

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Xu, Wei (1); Zhu, Runze (1); Ye, Caiyong (1); Zhu, Jianguo (2); Lei, Gang (2)

1: Huazhong University of Science and Technology, Wuhan, China, People's Republic of; 2: University of Technology, Sydney, Australia

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Sabioni, Claret Laurente; Ribeiro, Marcos Felipe de Oliveira; Vasconcelos, João Antonio
Federal University of Minas Gerais, Brazil

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Chen, Bin; Li, Lin; Zhao, Zhibin

North China Electric Power University, China, People's Republic of

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Cheon, Woong Jin; Lee, Kang Hyouk; Park, Il Han

Sunkyunkwan University, Korea, Republic of (South Korea)

Session Title	[PC-A6] Numerical Techniques 3
Date and Time	June 21 (Wednesday) / 14:10-16:00
Place	Rm. 103 (1F)
Session Chair	Jung Ho Lee (Hanbat Nat'l Univ., Korea)

PC-A6-1 **Withdrawn**

PC-A6-2 **Digest ID: 72**

A Hybrid Parallel Method for 3D Nonlinear Periodic Eddy Current Problems with Motions 603

He, Bo; Zhou, Ping; Lu, Chuan
Ansys, United States of America

PC-A6-3 **Digest ID: 312**

Stabilized Bordered Block Diagonal Form for Solving Nonlinear Magnetic Field Problems 605

Liu, Xiaoyu; Fu, Weinong
The Hong Kong Polytechnic University, Hong Kong S.A.R. (China)

PC-A6-4 **Digest ID: 258**

Application of the Proper Generalized Decomposition to solve MagnetoElectric Problem 607

henneron, thomas (1); clénet, stéphane (2)
1: university Lille1, France; 2: Arts et Metiers ParisTech, Lille, France

PC-A6-5 **Digest ID: 453**

An Extended Thin Approximation Method to Simulate Screening Current in REBCO Coils 609

Noguchi, So (1,2,3); Miyao, Ryosuke (1)
1: Hokkaido University, Japan; 2: National High Magnetic Field Laboratory; 3: Florida State University

PC-A6-6 **Digest ID: 493**

Numerical Approach Using Only Meshless Method for Solving Steady-State Scattering Problems of Electromagnetic Wave 611

Saitoh, Ayumu; Takayama, Teruo; Kamitani, Atsushi
Yamagata University, Japan

PC-A6-7 **Digest ID: 497**

Highly Accurate Analysis of Magnetic Field by Local-Expansion Edge Element Method with Boundary Surface Integration 613

Uchiyama, Takuya (1); Wakayama, Yuki (1); Wakao, Shinji (1); Tokumasu, Tadashi (2); Takahashi, Yasuhito (3); Fujiwara, Koji (3)
1: Waseda University, Japan; 2: Toshiba Corporation Infrastructure Systems and Solutions Company, Japan; 3: Doshisha University, Japan

PC-A6-8

Digest ID: 535

Slip- and High-Frequency Flux Density Separation Method for Rotor Losses Prediction of Induction Motors at Load Conditions 615

Zhao, Haisen; Li, Bing; Zhan, Yang; Xu, Guorui
North China Electric Power University, China, People's Republic of

PC-A6-9

Digest ID: 600

Transient Finite Element Simulation of Non-Linear Eddy Current Problems with Biot-Savart-Field of Voltage-Driven Coils 617

Hollaus, Karl; Schöberl, Joachim; Silm, Haik
Technische Universität Wien, Austria

PC-A6-10

Digest ID: 640

3D modeling of magneto-elastic behavior using simplified multi-scale model : application on power transformer core 619

Tang, Zuqi (1); Liu, Mingyong (1,2); Bouillault, Frédéric (1); Mininger, Xavier (1); Hubert, Olivier (2)
1: GeePs – Génie Electrique et Electronique de Paris, France; 2: LMT Cachan, France

PC-A6-11

Digest ID: 660

Performance of Block IC Preconditioner with Fill-in for Linear Systems Derived from Finite Element Meshes Including Thin Elements 621

Tsuburaya, Tomonori (1); Okamoto, Yoshifumi (2); Meng, Zhiqi (1)
1: Fukuoka University, Japan; 2: Hosei University, Japan

PC-A6-12

Digest ID: 708

Breakdown Voltage Improvement and Analysis of GaN HEMTs through Field Plate Inclusion and Substrate Removal 623

Berzoy, Alberto; Lashway, Christopher; Moradisizkoohi, Hadi; Mohammed, Osama
Florida International University, United States of America

PC-A6-13

Digest ID: 716

Approximate Stochastic Model of Geometry Randomness on Interconnect Parasitic in VLSI Circuit 625

Yin, Ying (1,2); Xu, Xiaoyu (1,2); Lyu, Pengfei (1,2); Yan, Shuai (1,2); Ren, Zhuoxiang (3)
1: Institute of Microelectronics of Chinese Academy of Sciences, China, People's Republic of; 2: Beijing Key Laboratory of 3D & Nano IC Electronic Design Automation Technologies, Beijing, China; 3: Sorbonne Universités, UPMC Univ Paris 06, UR2, L2E, Paris

PC-A6-14

Digest ID: 736

Novel approach for torque calculation of surface-mounted PMSM considering axial end leakage flux 627

Jung, Jae-Woo (1); Park, Hyung-Il (1); Hong, Jung-Pyo (2); Lee, Byeong-Hwa (3)
1: Hyundai Mobis, Korea, Republic of (South Korea); 2: Hanyang University, Korea, Republic of (South Korea); 3: Korea Automotive Technology Institute, Republic of (South Korea)

PC-A6-15

Digest ID: 411

Electric Field Computations using Axial Green's Function Method on Refined Axial Lines 629

Jo, Junhong (1); Kim, Hong-Kyu (2); KIM, DO WAN (1)

1: Inha University, Korea, Republic of (South Korea); 2: Korea Electrotechnology Research Institute, Korea, Republic of (South Korea)

PC-A6-16

Digest ID: 786

Adaptive Sampling of Physical Optics Currents Based on EFIE Error Prediction 631

Kim, Jin-Hyeok (1); Chung, Young-Seek (2); Park, Gyu Churl (3); Jung, Hyun-Kyo (1)

1: Seoul National University, Korea, Republic of (South Korea); 2: Kwangwoon University, Seoul, South Korea;
3: Agency for Defense Development, Daejeon, South Korea

Session Title	[PC-A7] Material Modelling 2
Date and Time	June 21 (Wednesday) / 14:10-16:00
Place	Rm. 104 (1F)
Session Chair	Yanli Zhang (Shenyang Univ. of Tech., China)

PC-A7-1 **Digest ID: 218**

Dynamic magnetic scalar hysteresis lump model, based on Preisach model quasi-static contribution extended with dynamic fractional derivation contribution 633

Zhang, Bin (1); Gupta, Bhaawan (2,3); Ducharne, Benjamin (2); Sebald, Gael (2,3); Uchimoto, Tetsuya (3)
1: SHANDONG UNIVERSITY, CHINA; 2: LGEF, INSA LYON, FRANCE; 3: ELYTMAX, TOHOKU UNIVERSITY JAPAN

PC-A7-2 **Digest ID: 297**

Benchmark on the 3D Numerical Modeling of a Superconducting Bulk 635

Berger, Kevin (1); Escamez, Guillaume (2); Quéval, Loic (3); Kameni, Abelin (3); Alloui, Lofti (3,4); Ramdane, Brahim (2); Trillaud, Frédéric (5); Makong Hell, Ludovic (3,6); Meunier, Gérard (2); Masson, Philippe (6); Lévêque, Jean (1)

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PC-A7-3 **Digest ID: 425**

Demagnetization Scheme for Avoiding Magnetic Mines Under the Exposure of Earth Magnetic Field 637

Im, Sang Hyeon (1); Lee, Ho Yeong (1); Chung, Hyun Ju (2); Park, Gwan Soo (1)

1: School of Electrical and Computer Engineering, Pusan National University, Busan 46241, Korea, Republic of (South Korea); 2: The 6th Research and development Institute-3, Agency for Defense Development, Changwon 51678, Korea, Republic of (South Korea)

PC-A7-4 **Digest ID: 534**

Numerical Inversion of a 2-Scale Magneto-Elastic Behaviour Model 639

Bernard, Laurent (1); Mailhé, Benjamin Joseph (1); Sadowski, Nelson (1); Daniel, Laurent (2)

1: GRUCAD/EEL/CTC, Universidade Federal de Santa Catarina, Florianopolis 88040-900, Brazil; 2: GeePs | Group of Electrical Engineering-Paris, UMR CNRS 8507, CentraleSupélec, Univ. Paris-Sud, Université Paris-Saclay, Sorbonne Universités, UPMC Univ Paris

PC-A7-5 **Digest ID: 675**

An Elemental Operator for Simulating Hysteresis of Soft Magnetic Composite Materials 641

Xu, Weijie (1); Duan, Nana (1); Li, Yongjian (2); Wang, Shuhong (1); Guo, Youguang (3); Zhu, Jianguo (3)

1: Xi'an Jiaotong University, China, People's Republic of; 2: Hebei University of Technology, People's Republic of; 3: University of Technology Sydney, Australia

PC-A7-6 **Digest ID: 702**

Investigation on the stability of the Vector Jiles-Atherton Model 643

Upadhaya, Brijesh (1); Perkkiö, Lauri (2); Singh, Deepak (1); Martin, Florian (1); Rasilo, Paavo (3); Belahcen, Anouar (1,4); Arkkio, Antero (1)

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PC-A7-7

Digest ID: 710

An Efficient Implementation of the Classical Preisach Model 645

Hussain, Sajid; Lowther, David
McGill University, Canada

PC-A7-8

Digest ID: 749

Dynamic Hysteresis Behavior Modeling of Ferromagnetic Material Based on Jiles-Atherton Theory 647

Zhang, Dianhai (1); Han, Yu (1); Ren, Ziyang (1); Zhang, Yanli (1); Koh, Chang-Seop (2)

1: Shenyang University of Technology, China; 2: Chungbuk National University, Korea, Republic of (South Korea)

PC-A7-9

Digest ID: 402

Efficient Numerical Implementation of a Vector Preisach Hysteresis Model for 3-D Finite Element Applications 649

Tousignant, Maxime (1,2); Sirois, Frederic (1); Dufour, Steven (1); Meunier, Gerard (2)

1: Polytechnique Montreal, Canada; 2: University Grenoble Alpes, France

PC-A7-10

Digest ID: 779

Improvement on Estimation Model of Hysteresis Loss in Induction Motor Core Considering Rotational Magnetization 651

Ren, Yajun (1); Zhang, Yanli (1); Zhang, Dianhai (1); Zeng, Linsuo (1); Xie, Dexin (1); Koh, Chang-Seop (2)

1: Shenyang University of Technology, China; 2: Chungbuk National University, Korea, Republic of (South Korea)

PC-A7-11

Digest ID: 782

A New Dynamic Hysteresis Model Based on Vector Play Model for Iron Loss Calculation Taking the Rotating Magnetic Fields into Account 653

Zhu, Lixun (1); Pham, Minh-Trien (2); Koh, Chang-Seop (1)

1: Chungbuk National University, Korea, Republic of (South Korea); 2: VNU University of Engineering and Technology, Vietnam

PC-A7-12

Digest ID: 399

Transversal Electrical Resistivity Evaluation of Rod Unidirectional Carbon Fiber-Reinforced Composite Using Eddy Currents 655

SAFER, Omar Adib (1,2); BENSALIM, Samir (1); TRICHET, Didier (3); WASELYNCK, Guillaume (3)

1: 2Laboratoire des Matériaux et du Développement Durable (LM2D), Université de Bouira, Algeria.; 2: Laboratoire de Génie Electrique (LGE), University de M'sila, M'sila; 3: Institut de Recherche en Energie Electrique de Nantes Atlantique, France

Input and Output Power Balance in Finite-Element Analysis of Electric Machines Taking Account of Hysteretic Property 657

Kitao, Junji (1,2); Takahashi, Yasuhito (1); Fujiwara, Koji (1); Ahagon, Akira (3); Matsuo, Tetsuji (4); Daikoku, Akihiro (2)

1: Doshisha University, Japan; 2: Mitsubishi Electric Corp., Japan; 3: Science Solutions International Laboratory, Inc., Japan; 4: Kyoto University, Japan

Session Title	[PD-M1] Wave Propagation 2
Date and Time	June 22 (Thursday) / 11:00-12:50
Place	Rm. 101 (1F)
Session Chair	Yasushi Kanai (Niigata Inst. of Tech., Japan)

PD-M1-1 **Digest ID: 317**

Digital Filtering Technique in SB FDTD for SPP Propagation Modelling on Graphene Based Optical Structures 659

Masud Rana, Md (1); Rabiul Islam, Md (1); Xu, Wei (2); Zhu, Jianguo (3)

1: Rajshahi University of Engineering & Technology, Rajshahi-6204, Bangladesh; 2: School of Electrical and Electronics Engineering, Huazhong University of Science & Technology, China; 3: Faculty of Engineering & IT, University of Technology Sydney, Sydney

PD-M1-2 **Digest ID: 362**

A Numerical Method for Analyzing Electromagnetic Properties of a Moving Ferromagnet with One-side Conducting Border 661

Shao, JingHui; Ma, XiKui; Wang, JiaWei; Yin, ShuLi
Xi'an JiaoTong University, China, People's Republic of

PD-M1-3 **Digest ID: 102**

Systematic Design of Grating Structure to Induce Surface Plasmon Resonance at the Prescribed Wavelength 663

Seong, Hong Kyoung (1); Yoo, Jeonghoon (2)

1: Graduate School of Mechanical Engineering, Yonsei university, Korea, Republic of (South Korea); 2: School of Mechanical Engineering, Yonsei university, Korea, Republic of (South Korea)

PD-M1-4 **Digest ID: 433**

Optimum Design of a Patch Antenna with Metamaterial 665

SOUZA, EDUARDO DE (1); BATALHA, ROSE MARY DE SOUZA (1); SOARES, GUSTAVO LUIS (1); SILVA, ELSON JOSÉ DA (2)

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PD-M1-5 **Digest ID: 500**

Electromagnetic simulation of rotating propeller blades for radar detection purposes 667

Marak, Karoly; Peto, Tamas; Bilicz, Sandor; Gyimothy, Szabolcs; Pavo, Jozsef
Budapest University of Technology and Economics, Hungary

PD-M1-6

Digest ID: 605

Multi-Domain Transmission Conditions for Domain Decomposition Methods Applied to Scattering Problems 669

Baratta, Igor Almeida; da Silva, Elson José
Universidade Federal de Minas Gerais, Brazil

PD-M1-7

Digest ID: 138

Interactive Electromagnetic Simulation for Optimizing Photonic Crystal Waveguides Using GPU 671

Yokoyama, Yuki (1); Chen, Gong (2); Nakata, Susumu (1); Ikuno, Soichiro (2)
1: Ritsumeikan University, Japan; 2: Tokyo University of Technology, Japan

PD-M1-8

Digest ID: 692

Numerical computation of plasmonic resonances in devices made of several dispersive media N/A

Demésy, Guillaume; Nicolet, André; Zolla, Frédéric
Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, F-13013 Marseille, France

PD-M1-9

Digest ID: 705

Hybrid Cross Approximation and Shared-Memory Programming for the Electric Field Integral Equation 673

Daquin, Priscillia (1); Poirier, Jean-René (1); Perrussel, Ronan (1); Buttari, Alfredo (2)
1: Université de Toulouse, CNRS, LAPLACE, Toulouse, France; 2: Université de Toulouse, CNRS, IRIT, Toulouse, France

PD-M1-10

Digest ID: 761

High-Resolution Millimeter Wave Ground Based-SAR Imaging via Compressed Sensing 675

Jung, Sang-hoon (1); Cho, Yong-sun (2); Kim, Jin-Hyeok (1); Park, Rae-seoung (3); Chung, Yong-seek (4); Jung, Hyun-Kyo (1)
1: Department of Electrical and Computer Engineering, Seoul National University, Seoul 08826, Korea; 2: R&D Center of Aerospace Division, Korean Air, Daejeon 34054, Korea; 3: Department of Electrical and Computer Engineering, University of Seoul, Seoul 13

Session Title	[PD-M2] Novel Computational Methods for Machines and Devices 2
Date and Time	June 22 (Thursday) / 11:00-12:50
Place	Rm. 102 (1F)
Session Chair	Bai Baodong (Shenyang Univ. of Tech., China)

PD-M2-1 **Digest ID: 390**

A Fast Solution of Rotor Harmonic Losses in Cage Induction Motors by Time-Stepping Finite Element Method 677

Zhan, Yang; Li, Bing; Zhao, Haisen; Xu, Guorui
North China Electric Power University, China, People's Republic of

PD-M2-2 **Digest ID: 252**

A Torque Compensation Control Scheme of PMSM considering a Wide Variation of Permanent Magnet Temperature 679

Cho, Suyeon (1); Jung, Hochang (1); Lee, Ju (2)
1: Korea Automotive Technology Institute, Korea, Republic of (South Korea); 2: Hanyang University, Electrical Engineering, Korea, Republic of (South Korea)

PD-M2-3 **Digest ID: 475**

Double-Circulatory Thermal Analyses of a Water-Cooled Permanent Magnet Motor Based on a Modified Finite Formulation Model 681

Zhu, Gaojia (1); Zhu, Yinghao (1); Zhu, Jianguo (2); Tong, Wenming (1); Han, Xueyan (1)
1: Shenyang University of Technology, China, People's Republic of; 2: University of Technology Sydney, Australia

PD-M2-4 **Withdrawn**

PD-M2-5 **Digest ID: 578**

Development of a Simplified Transformer Model for Transient Studies 683

Favela, Carlos (1); Hernandez, Coni (1); Gonzalez Dominguez, Jesus (1); Arjona, Marco A (1); Escalera-Perez, Rafael (2)
1: Instituto Tecnológico de La Laguna, Mexico; 2: Universidad Autónoma Metropolitana

PD-M2-6 **Digest ID: 614**

Calculation of Temperature Variation Effects on AC losses in HTS coils 685

Kim, Yungil (1); Lee, Ji-Young (2); Lee, Seyeon (1); Park, Sang Ho (1); Kim, Woo-Seok (1); Lee, Ji-Kwang (3); Choi, Kyeongdal (1)
1: Korea Polytechnic University, Korea, Republic of (South Korea); 2: Institute for Basic Science, Korea, Republic of (South Korea); 3: Woosuk University, Korea, Republic of (South Korea)

PD-M2-7

Digest ID: 361

Transient Behaviour of Large Transformer Windings Taking Capacitances and Eddy Currents into Account 687

Preis, Kurt (1); Rabel, Alexander (2); Renhart, Werner (1); Biro, Oszkar (1)
1: IGTE TU Graz, Austria; 2: Transformers Weiz, Siemens Inc, Austria

PD-M2-8

Digest ID: 697

Inverse Updating Method of High-frequency Equivalent Circuit Model in Transformer for Winding Deformation Diagnosis 689

Zhang, Haijun (1); Wang, Shuhong (2)
1: Hubei university of Arts and Science, China, People's Republic of; 2: Faculty of Electrical Engineering, Xi'an Jiaotong University, China, People's Republic of

PD-M2-9

Digest ID: 729

A Novel Method for Calculating Airgap Permeance of PM Machines Based on Equivalent Electrostatic FEA 691

Zou, Tianjie; Li, Dawei; Qu, Ronghai; Jiang, Dong
Huazhong University of Science and Technology, China, People's Republic of

PD-M2-10

Digest ID: 50

Design and Analysis of a Brushless DC Machine for a Miniature Battery Electric Vehicle 693

Sun, Xiaodong (1,2); Shi, Zhou (1); Xu, Xing (1,2); Yang, Zebin (3); Li, Ke (3); Zhu, Jianguo (4); Guo, Youguang (4)
1: School of Automobile and Traffic Engineering, Jiangsu University, China, People's Republic of; 2: Automotive Engineering Research Institute, Jiangsu University, China, People's Republic of; 3: School of Electrical and Information Engineering, Jiangsu U

PD-M2-11

Digest ID: 799

Rapid Electromagnetic Analysis and Design using Flux Tubes 695

STUIKYS, ALEKSAS (1); MOHAMMADI, MOHAMMAD HOSSAIN (2); LOWTHER, DAVID ALISTER (2); SYKULSKI, JAN (1)
1: UNIVERSITY OF SOUTHAMPTON, United Kingdom; 2: MCGILL UNIVERSITY, Canada

Session Title [PD-M3] Optimization and Design 9

Date and Time June 22 (Thursday) / 11:00-12:50

Place Rm. 103 (1F)

Session Chair Byungtak Kim (Kunsan Nat'l Univ., Korea)

PD-M3-1

Withdrawn

PD-M3-2

Digest ID: 776

A Novel Hybrid Algorithm of Black Hole and Differential Evolution for High Dimensional Electromagnetic Optimal Problems 697

Ren, Ziyang (1); He, Siying (1); Zhang, Dianhai (1); Koh, Chang-Seop (2)

1: Shenyang University of Technology, China; 2: Chungbuk National University, Korea, Republic of (South Korea)

PD-M3-3

Digest ID: 251

DC Current Control Method of Current Superimposition Variable Flux Reluctance Machine 699

Kohara, Akira; Hirata, Katsuhiro; Niguchi, Noboru
Osaka university, Japan

PD-M3-4

Withdrawn

PD-M3-5

Digest ID: 703

Modeling of Return Strokes with Their Initiation Processes under Consideration 701

Zhou, Mi (1); Wang, Jianguo (1); Wang, Daohong (2); Fan, Yadong (1)

1: Wuhan University, China, People's Republic of; 2: Department of Electrical, Electronic and Computer Engineering, Gifu University

PD-M3-6

Digest ID: 713

Automated Design of Rotor Topology for Synchronous Reluctance Machines considering Motor Control Strategies 703

Mohammadi, Mohammad; Li, Min; Silva, Rodrigo; Lowther, David
McGill University, Canada

PD-M3-7

Digest ID: 719

Analytical Modeling of Switched Flux Memory Machine 705

Yang, Hui; Lin, Heyun; Wang, Haitao; Li, Yibo; Fang, Shuhua; Huang, Yunkai
Southeast University, China, People's Republic of

PD-M3-8

Digest ID: 727

Investigation of the forces acting on the coils of a Modular Slotless Permanent Magnet Generator 707

Kallaste, Ants (1); Vaimann, Toomas (1,2); Rassõlkin, Anton (1); Belahcen, Anouar (1,2)
1: Tallinn University of Technology, Estonia; 2: Aalto University, Finland

PD-M3-9

Digest ID: 738

Design of an Axial Flux Permanent Synchronous Motor with Segmented Cores 709

Hwang, Nae-Won (1); Jung, Hyun-Kyo (2); Woo, Dong-Kyun (1)
1: Yeungnam University, Korea, Republic of (South Korea); 2: Seoul National University, Korea, Republic of (South Korea)

PD-M3-10

Digest ID: 743

Taguchi Robust Design Optimization for Water Cooled ISG Considering Temperature Distribution and Manufacturing Tolerance 711

Kim, Kyu-Seob (1); Lee, Byeong-Hwa (1); Lee, Bong-Hyun (1); Jung, Jae-Woo (2); Hong, Jung-Pyo (3)
1: KATECH, Korea, Republic of (South Korea); 2: Hyundai Mobis, Korea, Republic of (South Korea); 3: Hanyang University, Korea, Republic of (South Korea)

PD-M3-11

Digest ID: 751

Halbach Array Permanent Magnet Tubular Linear Generator for Direct-Driver Wave Energy Conversion 713

Liu, Chunyuan (1); Liu, Qiang (2); Zhu, He (1)
1: College of Mechanical and Electrical Engineering, Jiaying University, Jiaying, People's Republic of China; 2: Department of Electrical Engineering, Jiangsu Maritime Institute, People's Republic of China

PD-M3-12

Digest ID: 755

A New Multimodal Robust Optimization for Cogging Torque Reduction of Interior Permanent Magnet Motor 715

Park, Hyeon-Jeong (1); Yeo, Han-Kyeol (1); Jung, Hyun-Kyo (1); Jung, Sang-Yong (2); Ro, Jong-Suk (3)
1: Department of Electrical and Computer Engineering, Seoul National University, Seoul, Korea; 2: School of Electronic and Electrical Engineering, Sungkyunkwan University, Suwon, Korea; 3: School of Electrical and Electronics Engineering, Chung-Ang Univer

PD-M3-13

Digest ID: 771

Core Loss Analysis of Permanent Magnet Linear Synchronous Generator Considering the 3-D Flux Path 717

Kim, Chang-Woo; Kim, Jeong-Man; Seo, Sung-Won; Ahn, Ji-Hun; Choi, Jang-Young
Department of Electrical Engineering, Chungnam National University, 99 Daehak-ro, Yuseong-gu, Daejeon 305-764, Korea

PD-M3-14

Digest ID: 774

Robust Optimization for Reducing Cogging Torque of Permanent Magnet Motor with Static Analysis Assisted Technique. 719

Lee, Jae-Gil (1); Lim, Dong-Kuk (1); Jung, Hyun-Kyo (1); Jung, Sang-Yong (2); Woo, Dong-Kyun (3)
1: Seoul National University, Korea, Republic of (South Korea); 2: Sungkyunkwan University, Suwon, Republic of (South Korea); 3: Yeungnam University, Gyeongsbuk, Republic of (South Korea)

Session Title [PD-M4] Multi-physics and Coupled Problems 2

Date and Time June 22 (Thursday) / 11:00-12:50

Place Rm. 104 (1F)

Session Chair Se-Hee Lee (Kyungpook Nat'l Univ., Korea)

PD-M4-1 **Digest ID: 64**

Simulation of Bipolar Charge Transport in Polymer Under a DC Electric Field Based on Discontinuous Galerkin Methods N/A

Zhuang, Chijie (1); Zheng, Yuesheng (2); Zeng, Rong (1); He, Jinliang (1)
 1: Department of Electrical Engineering, Tsinghua University, Beijing, China; 2: College of Electrical Engineering and Automation, Fuzhou University, Fuzhou, China

PD-M4-2 **Digest ID: 388**

Electromagnetic and Structural Coupling Analysis of Hybrid Driven PM Multi-DOF Motor 721

LI, Zheng; ZHI, Ruodong
 Hebei University of Science and Technology, China, People's Republic of

PD-M4-3 **Digest ID: 45**

FEM modeling of five-phase magnetoelectric composites for energy transducers 723

Talleb, Hakeim; Ren, Zhuoxiang
 L2E-UPMC, France

PD-M4-4 **Withdrawn**

PD-M4-5 **Digest ID: 430**

Electromagnetic-Thermal-Fluidic Analysis of Permanent Magnet Synchronous Machine by Bi-directional Method 725

Jiang, Yapeng; Wang, Dong; Chen, Junquan; Zhang, Qinghu
 Naval University of Engineering, China, People's Republic of

PD-M4-6 **Digest ID: 460**

A Study on Analytical Methods of FEM-based Edge Heating System 727

Jeong, Geochul (1); Cho, Suyeon (2); Yang, Youngmin (3); Choe, Gilyong (4); Bae, Jae-Nam (5)
 1: Hanyang University, Korea, Republic of (South Korea); 2: Korea Automotive Technology Institute, Korea, Republic of (South Korea); 3: Dawonsys, Korea, Republic of (South Korea); 4: Dawonsys, Korea, Republic of (South Korea); 5: Dongyang Mirae University

PD-M4-7

Digest ID: 544

Bezier Curve-based Shape Optimization of SF6 Gas Circuit Breaker to Improve the Dielectric Withstanding Performance for both Medium and Maximum Arcing Time 729

Kwak, Chang-Seob (1); Kim, Hong-Kyu (1); Kwak, Joo-Sik (2); Oh, Seung-Ryle (2); Lee, Se-Hee (3)
1: Korea Electrotechnology Research Insititute, Republic of Korea; 2: Power Transmission Laboratory, KEPCO Research Insititute, Republic of Korea; 3: Kyungpook National University, Republic of Korea

PD-M4-8

Digest ID: 201

Research on Stress Characteristics of Shunt Reactor Considering Magnetic and Magnetostrictive Anisotropy 731

Ben, Tong (1); Yang, Qingxin (1,2); Yan, Rongge (1); Zhu, Lihua (2); Zhang, Changgeng (1)
1: Hebei University of Technology, China, People's Republic of; 2: Tianjin Polytechnic University, China, People's Republic of

PD-M4-9

Withdrawn

PD-M4-10

Digest ID: 593

A Study of Arc Modelling in Low-Voltage Switching Devices 733

Shin, Dongkyu (1); Golosnoy, Igor O. (1); McBride, John W. (2,3)
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PD-M4-11

Digest ID: 627

Efficient Algorithm for Coupled Problem Simulation of High Dynamic Electromagnetic Actuators 735

Mach, Frantisek; Dolezel, Ivo
University of West Bohemia, Czech Republic

PD-M4-12

Digest ID: 674

Conductivity Reconstruction and Numerical Simulation for Magnetically Mediated Thermoacoustic Imaging 737

Li, Yanhong (1,2); Liu, Guoqiang (1,2); Xia, Hui (1); Xia, Zhengwu (1); Yang, Yanju (1,2)
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Digest ID: 679

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Audiffred, Diego Bonkowski de La Sierra; Travassos, Xisto Lucas; Possamai, Talita Sauter; Bohrer, Êmili; Narciso, Gabriella
Federal University of Santa Catarina, Brazil

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Digest ID: 690

Magnetic Field Harmonics and its Effect on Vibration in a Bridge Configured Winding Induction Motor 741

Kumar, Gaurav (1); Kalita, Karuna (1); Tammi, Kari (2)
1: Indian Institute of Technology Guwahati, India; 2: Aalto University

Session Title [PD-A5] Optimization and Design 10

Date and Time June 22 (Thursday) / 14:10-16:00

Place Rm. 101 (1F)

Session Chair Shiyong Yang (Zhejiang Univ., China)

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Optimal Design of a New Modular Flux-Concentrated Doubly Salient Machine with PMs in Both Stator Yoke and Slot Openings 743

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PD-A5-2 **Digest ID: 209**

Simulation on Electric Field Affected by Space Charge in Oil-paper Insulation System Under Polarity Reversal 745

Du, Zhiye; Lian, Qixiang; Yang, Zhifei; Jin, Shuo; Ruan, Jiangjun

Wuhan University, China, People's Republic of

PD-A5-3 **Digest ID: 332**

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Suzuki, Hironori; Hirata, Katsuhiko; Niguchi, Noboru; Morimoto, Eiki; Kohara, Akira

Osaka university, Japan

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Lee, Kang Hyouk; Choi, Chan Young; Park, Il Han

Sungkyunkwan University, Korea, Republic of (South Korea)

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MA, BO; Lei, Gang; Zhu, Jianguo; Guo, Youguang

University of Technology Sydney, Australia

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Jian, Yanhong; Zhu, Xiaoyong; Xiang, Zixuan; Fan, Deyang; Zeng, Xianxian

Jiangsu University, China, People's Republic of

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Mohammadi, Mohammad (1); Rahman, Tanvir (2); Silva, Rodrigo (1); Wang, Bofan (1); Chang, Kang (2); Lowther, David (1)

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Wang, Quandi; Wang, Yingcong

Chongqing University, China, People's Republic of

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Comparison of Reliability Analysis Between Regression Kriging and Sensitivity Assisted MCS Methods for Reliability-based Optimal Design of Electromagnetic Devices 759

Ren, Ziyang (1); Ma, Jianggang (1); Zhang, Dianhai (1); Zhang, Yanli (1); Koh, Chang-Seop (2)

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PD-A5-10

Digest ID: 787

A Novel Multimodal Optimization Algorithm Using a Subgroup Concept for the Design of Electric Machines 761

Yeo, Han-Kyeol (1); Park, Hyeon-Jeong (1); Lim, Dong-Kuk (1); Jung, Sang-Yong (2); Ro, Jong-Suk (3); Jung, Hyun-Kyo (1)

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Kang, Jae-Woo (1); Park, Hyeon-Jeong (1); Jung, Seok Won (1); Ro, Jong Suk (2); Jung, Hyun-Kyo (1)

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PD-A5-12

Digest ID: 473

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Shin, Homin; Chang, Junghwan

Dong-A University, Korea, Republic of (South Korea)

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Digest ID: 271

Coil Design Multi-Objective Optimization of Power Pad in WPT System for EV Applications 767

Mohamed, Ahmed A. S.; An, Siguang; Marim, Allan; Mohammed, Osama

Florida International University, United States of America

Optimal Design for Cogging Torque Reduction of an IPMSM Using PSO with Anti-Submarine Operation Concept 769

Yoon, Sung-Yeong (1); Lee, Jae-Gil (1); Ro, Jong-Suk (2); Jung, Hyun-Kyo (1)

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Session Title	[PD-A6] Static and Quasi-Static Fields 4
Date and Time	June 22 (Thursday) / 14:10-16:00
Place	Rm. 102 (1F)
Session Chair	Gwansoo Park (Pusan Nat'l Univ., Korea)

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Digest ID: 20

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De Gersem, Herbert (1); Srinivasan, Vaishnavi (1,2); Muehle, Carsten (2)

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PD-A6-2

Digest ID: 648

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Ouedraogo, Yun (1); Gjonaj, Erion (1); Weiland, Thomas (1); De Gersem, Herbert (1); Steinhausen, Christoph (2); Lamanna, Grazia (2); Weigand, Bernhard (2); Preusche, Andreas (1); Dreizler, Andreas (1)

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PD-A6-3

Digest ID: 212

A geometric formulation to solve eddy current problems in thin conductors of arbitrary topology on general meshes 775

Bettini, Paolo (1); Specogna, Ruben (2); Passarotto, Mauro (2)

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PD-A6-4

Withdrawn

PD-A6-5

Digest ID: 643

Finite Element Analysis of Local Flux Density Variation Considering PWM Current Harmonics 777

Ahn, Donggyun; Yoon, Myung-Hwan; Hong, Jung-Pyo

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Digest ID: 644

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Kim, Sang-Hyun (1); Kim, Jong-Wang (1); Lee, Byung-Chul (1); Kim, Seong-Mo (1); Chung, Hyun-Ju (2); Lee, Hyang-Beom (1)

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Fujita, Shogo; Igarashi, Hajime
Hokkaido University, Japan

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Debray, Quentin Jean-Yves (1,2,3); Meunier, Gerard (2,3); Chadebec, Olivier (2,3); Coulomb, Jean Louis (2,3); Carpentier, Anthony (1)
1: Altair Engineering, France; 2: Université grenoble Alpes; 3: CNRS

PD-A6-9

Withdrawn

PD-A6-10

Digest ID: 157

Interior Penalty Discontinuous Galerkin Method for Magnetostatic Field Problems in Two Dimensions 785

Straßer, Sebastian; Herzog, Hans-Georg
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PD-A6-11

Digest ID: 718

Simulation on Dual Laterolog Response based on the Circumferential Magnetic Field Strength Method 787

Zhang, Chao (1,2); Liu, Guoqiang (1,2); Li, Shiqiang (1); Liu, Yu (1), Yanhong Li (1)
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PD-A6-12

Digest ID: 757

Calculation of Electric/Magnetic field under Power Transmission Line with Periodic Analysis, Dip Effect and Method of Image 789

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PD-A6-13

Digest ID: 652

A Novel Approach for Axial End Leakage Flux of Spoke-type Interior Permanent Magnet Motors Using Magnetic Equivalent Circuit 791

Ryu, Jun-Yeol; Sim, Jae-Han; Yoon, Myung-Hwan; Hong, Jung-Pyo
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Session Title	[PD-A7] Mathematical Modelling and Formulations 2 / Software Methodology
Date and Time	June 22 (Thursday) / 14:10-16:00
Place	Rm. 103-104 (1F)
Session Chair	Raffaele Martone (Universita' degli Studi della Campania "L. Vanvitelli", Italy)

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A Two Dimensional Nonlinear Ambipolar Diffusion Equation Model of an IGBT and its Numerical Solution Methodology 793

Chen, Jiajia (1); Yang, Shiyu (1); Ho, S. L. (2)

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PD-A7-2 **Digest ID: 304**

Solution of 2D Electromagnetic Scattering Using IIEFG-UPML Method 795

Lopes, Leonardo Bruno; Resende, Ursula do Carmo; Gonçalves, Sandro Trindade
CEFET-MG, Brazil

PD-A7-3 **Digest ID: 352**

The Planar Layered Two-Phase System Model of Frequency Response of Insulation System for Estimating Moisture in IOCT 797

BAI, Baodong; WANG, Qingpeng; CHEN, Dezhi; HE, Xiaoyu
Shenyang University of Technology, China, People's Republic of

PD-A7-4 **Digest ID: 365**

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Dong, Jinlong; Zhang, Guogang; Geng, Yingsan; Wang, Jianhua
Xi'an Jiaotong University, China, People's Republic of

PD-A7-5 **Digest ID: 371**

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Duan, Jiaheng (1,2); Zhang, Kunlun (1,2); Zhang, Wenlong (1,2); Xiao, Song (1,2)

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PD-A7-6 **Digest ID: 379**

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Chen, Junquan (1,2); Wang, Dong (1); Cheng, Siwei (1); Chen, Zhihua (1); Jiang, Yapeng (1); Shen, Yang (1); Birkammer, Florian (2); Gerling, Dieter (2)

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PD-A7-7

Digest ID: 124

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Zhong, Hui; Wu, Chao; Yang, Yubo
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An Exact Magnetic Equivalent Circuit Model for Analysis of Surface Mounted Permanent Magnet Motors 807

Faiz, Jawad; Rezaee-Alam, Farhad
University of Tehran, Iran, Islamic Republic of

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Digest ID: 393

Analysis of the UPML Design Parameters in the Solution of Electromagnetic Scattering 809

Valvassoura, Giovanni; Afonso, Márcio Matias; Gonçalves, Sandro Trindade Mordente
Federal Center of Technological Education of Minas Gerais, Brazil

PD-A7-10

Digest ID: 406

Efficient NVH-Modeling of a Disc Rotor Axial-Flux Synchronous Motor as Integrated Motor Generator in Hybrid Applications 811

Kotter, Philipp (1); Morisco, David Philipp (1); Boesing, Matthias (1); Zirn, Oliver (2); Wegener, Konrad (2)
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PD-A7-11

Digest ID: 434

A research on the Demagnetization and Demagnetizing Factors for Normal Shape of Magnetic Materials 813

Im, Sang Hyeon; Park, Gwan Soo
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PD-A7-12

Digest ID: 468

3D Equivalent Model to Compute the Electro-Magnetic Behaviour of Twisted Multi-filamentary Superconductors Wires 815

MAKONG, LUDOVIC (1,2); KAMENI, ABELIN (1); BOUILLAULT, FREDERIC (1); MASSON, PHILIPPE (2)
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PD-A7-13

Digest ID: 492

Distributed Implicit Discontinuous Galerkin MHD Solver 817

Korous, Lukas (1); Karban, Pavel (1); Skála, Jan (2)
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Digest ID: 499

Theoretical Energy Dissipation and Numerical Calculation of Passive Magnetic Fluid Damper 819

Yang, Xiaorui (1); Yang, Qingxin (1,2); Chen, Lifei (1); Guo, Bing (1); Yang, Wenrong (1)
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PD-A7-15

Digest ID: 536

PWM Core-loss Analysis of Permanent Magnet Motor Using Current-Waveform 821

Lee, Jeong-Jong; Lee, Ki-Doek; Rhyu, Se-Hyun
Korea Electronics Technology Institute, Korea, Republic of (South Korea)

PD-A7-16

Digest ID: 543

A Fully GPU Solution Using Meshless Petrov Galerkin Local 823

Amorim, Lucas Pantuza; Mesquita, Renato Cardoso
Federal University of de Minas Gerais, Brazil

PD-A7-17

Withdrawn

PD-A7-18

Digest ID: 617

Development of a Reluctance Mesh Generator 825

Arjona, Marco A; Hernandez, Coni; Maldonado, Daniel
Instituto Tecnológico de La Laguna, Mexico

PD-A7-19

Digest ID: 672

Efficient Perturbation Method for Computing Two-Port Parameter Changes due to Foreign Objects for WPT Systems 827

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PD-A7-20

Digest ID: 532

An Electrothermal Lumped Modeling Approach for Thin Bond Wires in Microelectronic Chip Packages 829

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