Session Title	**[PC-M3] Mathematical Modelling and Formulations 1 / Multi-scale Modelling and Homogenization**
Date and Time	**June 21 (Wednesday) / 11:00-12:50**
Place	**Rm. 103-104 (1F)**
Session Chair	**Dong-hun Kim (Kyungpook Nat'l Univ., Korea)**

PC-M3-1 **Digest ID: 7**

Generalized 3D Strong Coupled Model of Electrical Machines Closed in Loop with PI Controller

Superczynska, Paulina; Stepien, Slawomir; Stranz, Artur
Poznan University of Technology, Poland

PC-M3-2 **Digest ID: 35**

Microwave Measurement of Initial Properties of Ferrites using Mode Splitting Phenomenon by the Rod Resonator Method

Kim, Tae-Wan; Park, Seong-Ook
Korea Advanced Institute of Science and Technology, Korea, Republic of (South Korea)

PC-M3-3 **Digest ID: 69**

Core Loss Calculation Based On Finite Element Method with Jiles–Atherton Dynamic Hysteresis Model

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

PC-M3-4 **Digest ID: 70**

Study of Magnetoconvection Impact on a Solenoid Coil Cooling by Ferrofluid with a Spectral / Finite Element Method

Zanella, Raphaël (1,3); Nore, Caroline (1); Bouillault, Frédéric (2); Cappanera, Loic (3); Tomas, Ignacio (3); Mininger, Xavier (2); Guermond, Jean-Luc (3)
1: LIMSI, CNRS, Univ. Paris-Sud, Université Paris-Saclay, F-91405 Orsay, France; 2: GeePs, UMR 8507 CNRS / CentraleSupelec - Universités UPMC et UPSud, 91192 Gif sur Yvette cedex, France; 3: Department of Mathematics, Texas A&M University, College Station

PC-M3-5 **Digest ID: 91**

Building Real Subspaces for Projection Based Model Order Reduction with Application in Computational Electromagnetics

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

PC-M3-6 **Digest ID: 96**

New algorithm for the source field component determination with resistive sheet and coaxial type conductors in T-Ω formulation

Lu, Chuan; Zhou, Ping; He, Bo
ANSYS Inc., United States of America

PC-M3-7 **Digest ID: 658**

Modeling and Analysis on Quasi-parallel Magnetic Field Created by Magnetic Rings Array

SUN, Feng; wei, wei
Shenyang University of Technology, China, People's Republic of

PC-M3-8 **Digest ID: 384**

Data-Driven Multi-Element Arbitrary Polynomial Chaos for Uncertainty Quantification in Sensors

Alkhateeb, Osama J.; Ida, Nathan
The University of Akron, United States of America

PC-M3-9 **Digest ID: 130**

Research on Grounding Grids Imaging Reconstruction Based on Magnetic Detection Electrical Impedance

Liu, kai (1); Yang, Fan (1); Zhang, Songyang (2); Zhu, Liwei (3); Hu, Jiayuan (3); Wang, Xiaoyu (3); Shen, Xiaoming (3)
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

PC-M3-10 **Digest ID: 142**

Analysis of Surface Mounted Permanent Magnet Motors Using Combined Winding Function and Conformal Mapping Method

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

PC-M3-11 **Digest ID: 186**

A 3D-PEEC Formulation Based on the Cell Method for Full-Wave Analyses with Conductive, Dielectric, and Magnetic Media

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

PC-M3-12 **Digest ID: 203**

Adaptive Mesh Refinement for Multi-Scale FEM for the Eddy Current Problem in Laminated Materials

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

PC-M3-13 **Digest ID: 221**

Implementation of an Effective Height of Bent Thin-Wire in Cartesian FDTD Mesh and Electric Charge Correction on the Staircased Edges

Gonçalves, Sandro Trindade Mordente; Fonseca, Tarcísio Carlos; Afonso, Márcio Matias
Federal Center of Technological Education of Minas Gerais, Brazil

PC-M3-14 **Digest ID: 239**

Design and Application of 2-Dimensional Equivalent Model for a Novel Hybrid Excitation Brushless Claw-Pole Alternator

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

PC-M3-15 **Digest ID: 278**

Quasi-3D Finite-Element Method for Simulating Cylindrical Induction Heating Devices

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

PC-M3-16 **Digest ID: 467**

H-formulation using the Discontinuous Galerkin method for the 3D Modeling of Superconductors

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

PC-M3-17 **Digest ID: 619**

Modelling of Magnetic Characteristics of Soft Magnetic Composite Using Magnetic Field Analysis

Gao, Yanhui (1); Fujiki, Takuya (1); Dozono, Hiroshi (1); Muramatsu, Kazuhiro (1); Guan, Weimin (2); Yuan, Jiaxin (2); Tian, Cuihua (2); Chen, Baichao (2)
1: Department of Electrical and Electronic Engineering, Saga University, Japan; 2: School of Electrical Engineering, Wuhan University, China

PC-M3-18 **Withdrawn**

PC-M3-19 **Digest ID: 691**

A High Efficient Post-Possessing Method for Computing Magnetic Flux in Coils Considering Magnetic and Conductive Regions

Huang, Limin; Meunier, Gérard; Chadebec, Olivier; Guichon, Jean-Michel; Galopin, Nicolas
Université Grenoble Alpes, France

PC-M3-20 **Digest ID: 154**

Electromagnetic Field Analysis Considering Reaction Field Caused by Eddy Currents and Hysteresis Phenomenon in Laminated Cores

Yamazaki, Katsumi; Sakamoto, Yuto
Chiba Institute of Technology