TUESDAY, SEPTEMBER 5

9:00 – 9:20 **Opening**

9:20 – 11:00 TuO1

Chair: Ivan Škorvánek, Slovak Academy of Sciences, Košice, Slovakia

9:20 TuO1-1

SMM history
A. Moses *(former chairman of SMM International Committee, former director of Wolfson Centre, Cardiff, United Kingdom)*

9:40 TuO1-2

Keynote lecture
Recent advances in nanocrystalline soft magnetic materials: A critical review for way forward
K. Suzuki *(Monash University, Clayton, Australia)*

10:20 TuO1-3

Biomedical applications of magnetically bistable microwires
D. Kozejova[1], M. Kohan[2], S. Lancos[2,3], R. Hudak[2], **R. Varga**[1,4] *([1]Safarik University, [2]TUKE, [3]Biomedical Engineering s.r.o, [4]RVmagnetics, a.s., Košice, Slovakia)*

10:40 TuO1-4

Jiles-Atherton's parameters as a function of temperature
T. Shirane, Y. Maedako, K. Hiramatsu *(National Institute of Technology, Sendai College, Sendai, Japan)*

11:00 – 11:30 Coffee break

11:30 – 12:50 TuO2

Chair: Afef Kedous-Lebouc, CNRS G2Elab, Grenoble, France

11:30 TuO2-1

Keynote lecture
The effect of crystallographic misorientation and grain boundary inclination on magnetic properties of NO electrical steel
L. A. I. Kestens[1,2], T. Nguyen-Minha[1], H. Pirgazia[1] *([1]Ghent University, Ghent, Belgium, [2]Delft University of Technology, Delft, Netherlands)*

12:10 TuO2-2

Influence of processing routes on the magnetocaloric response in all-d-metal $Ni_{36}Co_{14}Mn_{35}Ti_{15}$ Heusler alloys
A. N. Khan, Á. Díaz-García, L. M. Moreno-Ramírez, J. Y. Law, **V. Franco** *(University of Seville, Seville, Spain)*

12:30 TuO2-3

Diffusion of $FeSi_2$ powder in unalloyed steel sheet
M. Köhne, S. Henneck *(Robert Bosch GmbH, Renningen, Germany)*

12:50 – 14:00 Lunch

14:00 – 16:00 TuO3

Chair: Carlo Appino, Istituto Nazionale di Ricerca Metrologica – INRIM, Torino, Italy

14:00 TuO3-1

Characterization of a small motor for drones using new Si-gradient steel (JNRF™)
S. Yoshizaki, Y. Zaizen, T. Okubo *(JFE Steel, Kurashiki, Japan)*

14:20 TuO3-2

Effect of temperature and stress on magnetic losses in thin Fe-Co sheets
N. Banu[1], E. Ferrara[1], L. Rocchino[1], F. Fiorillo[1], M. Pasquale[1], D. Brunt[2], A. Wilson, S. Harmon[2] *([1]INRiM – National Metrology Institute of Italy, Turin, Italy, [2]National Physical Laboratory, Teddington, United Kingdom)*

14:40 TuO3-3

Eddy current losses model and physical parameters evaluation for Ferrite magnetic cores
V. Bertolini, R. Scorretti, A. Faba, E. Cardelli *(Università degli Studi di Perugia, Perugia, Italy)*

15:00 TuO3-4

Structure and magnetism of chemically synthesized Fe_xCo_{1-x} nanoparticles at the nanoscale
J. Gutiérrez[1,2], V. Vadillo[2], J. S. Garitaonandia[1], M. Insausti[1,2] *([1]Faculty of Science and Technology, Leoia, Spain, [2]University of the Basque Country UPV/EHU)*

15:20 TuO3-5

Effects of warm-rolling reduction rate on microstructure, texture and magnetic properties of FE18Co-xSi-0,5AI mass
T. Sato, H. Takabayashi *(DAIDO STEEL CO., LTD., Nagoya, Japan)*

15:40 TuO3-6

Magnetic loss versus temperature and role of doping in Mn-Zn ferrites
V. Tsakaloudi[1], C. Beatrice[2], F. Fiorillo[2], V. Zaspalis[1,3] *([1]Centre for Research and Technology-Hellas CERTH, Thermi-Thessaloniki, Greece, [2]INRIM, Torino, Italy, [3]Aristotle University of Thessaloniki, Thessaloniki, Greece)*

16:00 – 18:00 TuP Poster session 1

Chair: Antonín Platil, Czech Technical University

TuP-1

Emergent Magnetic Field and Gyrovector of the Toroidal Magnetic Hopfion
D. Popadyuk[1,2], E. Tartakovskaya[1,2], M. Krawczyk[1], **K. Gusliyenko**[3,4] *([1]Adam Mickiewicz University, Poznań, Poland, [2]National Academy of Sciences of Ukraine, Kyiv, Ukraine, [3]Universidad del País Vasco, San Sebastian, Spain, [4]the Basque Foundation for Science, Bilbao, Spain)*

TuP-2

Magnetocaloric properties of melt-extracted high entropy amorphous microwires
S. Wei[1], H. Shen[1], L. Zhang[1], L. Luo[1], X. Tang[1], X. Li[2], J. Sun[1] *([1]Harbin Institute of Technology, Harbin, China, [2]KTH – Royal Institute of Technology, Stockholm, Sweden)*

TuP-3

Magnetocaloric properties in $ErCrO_3$ nanocrystals: dimensional dependence
J. Carvalho, L. Erdogan, A. Durairajan, **V. R. Eskilla**, M. P. F. Graça, M. A. Valente *(University of Aveiro, Aveiro, Portugal)*

TuP-4

Fabrication and magnetocaloric properties of GdCrO3-based nanocomposites for cryogenic refrigeration
M. Rosário, A. Durairajan, **V. R. Eskilla**, M. A. Valente *(University of Aveiro, Aveiro, Portugal)*

TuP-5

A modified Arctangent Hysteresis Model for Residual Stress Description
N. O. Ahmed[1], H. Meziane[2], **Y. Gabi**[3], W. Bernd[3], B. Straß[3] *([1]Mouloud Mammeri University, Tizi-Ouzou, Algeria, [2]Laboratory of Energy and Mechanical Engineering, [3]Fraunhofer Institute for Non-Destructive Testing IZFP., Saarbrucken, Germany)*

TuP-6

Magneto-mechanical properties of $Fe_{79.}9Al_{20}R_{0.1}$ alloys (R=La, Pr, and Sm)
W. Ch. Chang[1], S. U. Jen[2], Y. H. Liao[1], F. C. Chang[1], W. C. Chang[1] *([1]National Chung Cheng University, Chia-Yi, Taiwan, [2]Academia Sinica, Taipei, Taiwan)*

TuP-7

Effects of Pulsed Laser Ablation on Magnetic Losses of GO Electrical Steels along Various Excitation Directions

P. Dupont[1], O. Maloberti[1], J. Dupuy[2], M. Ployard[3], D. Laloy[3], J. Fortin[1] *([1]UniLaSalle Amiens, Amiens, France, [2]Multitel a.s.b.l., Mons, Belgium, [3]JEUMONT Electric, Jeumont, France)*

TuP-8

Magnetic anisotropy reduction of non-grain oriented electrical steel due to different stress relief annealing temperatures

E. M. M. Alves[1], C. C. Silveira[1], J. R. de O. Júnior[1], F. J. G. Landgraf[2] *([1]Aperam South America, Timóteo, Brazil, [2]University of São Paulo, São Paulo, Brazil)*

TuP-9

Maximum Annealing Temperature Preserving Loss Reduction in Laser-Treated GOES

M. Nesser[1], O. Maloberti[1], C. Pineau[2], J. Dupuy[3], J.-P. Birat[4] *([1]Unilasalle Amiens, Amiens, France, [2]IRT-M2P, Metz, France, [3]Multitel a.s.b.l., Mons, Belgium, [4]IF Steelman, Semecourt, France)*

TuP-10

Improved ODF approach to model magnetic properties of Grain Oriented Electrical Steels taking into account mechanical stress

Z. Lia[2,3], Z. Tang[1], **O. Messal**[1], A. Benabou[1], S. Wang[2,3] *([1]University of Lille, Lille, France, [2]State Key Laboratory of Electrical Insulation and Power Equipment, Shaanxi, China, [3]Shaanxi Key Laboratory of Smart Grid, Shaanxi, China)*

TuP-11

Predicting HGO final core loss by primary recrystallization core loss and texture area ratio

A. A. de Almeida, **C. Cesconetto Silveira**, D. G. Rodrigues *(Aperam South America R&D, Timoteo, Brazil)*

TuP-12

The effect of laser scribing spacing on core loss of grain oriented electrical steel

A. A. de Almeida, **C. Cesconetto Silveira**, D. G. Rodrigues *(Aperam South America R&D, Timoteo, Brazil)*

TuP-13

Temperature behaviour of electrical steel under rotational magnetization

C. Delaunay, C. Joubert, F. Sixdenier *(Universite Claude Bernard Lyon 1, Lyon, France)*

TuP-14

Investigation on Physical Origins of Laser Effects on Anisotropic Magnetic Properties of GO Electrical Steels by means of Thermal Annealing

P. Dupont[1], O. Maloberti[1], J. Dupuy[2], C. Pineau[3], J. - P. Birat[4], M. Ployard[5], D. Laloy[5], J. Fortin[1] *([1]UniLaSalle Amiens, Amiens, France,[2]Multitel a.s.b.l., Mons, Belgium, [3]RT-M2P, Metz, France, [4]IF Steelman, Semecourt, France, [5]JEUMONT Electric, Jeumone, France)*

TuP-15

A Comparative Analysis of Energy Loss Mechanism of GO Electrical Steels

H. Hamzehbahmani[1], R. V. Sabariego[2], B. Ducharne[3] *([1]Durham University, Durham, UK, [2]KU Leuven, Genk, Belgium, [3]Universite Claude Bernard Lyon 1, Lyon, France)*

TuP-16

Magnetic properties of non-oriented Si-steel under in-plane isotropic stress applied by piezoelectric element

S. Hashi[1]**,** A. Terashim[1], K. Ishiyama[2], K. Yamamoto[3] *([1]Tohoku-gakuin University, Sendai, Japan, [2]Tohoku University, Sendai, Japan, [3]University of the Ryukyus, Okinawa, Japan)*

TuP-17

SMM26 Grain Growth and Texture Evolution at Final Annealing of Ferritic FeSi2.4

A. Franke, **J. Schneider** *(Stahlzentrum Freiberg e.V., Freiberg, Germany)*

TuP-18

Frequency Analysis of Uniform Magnetic Domain of Grain Oriented Electrical Steel Sheet

Y. Kawamura *(Nippon Steel Corporation, Futtsu-Shi, Japan)*

TuP-19

Effect of Sheet Thickness on the Hysteresis Loss of Non-oriented Electrical Steel

N. A. L. Rodrigues[1], S. C. Paolinelli[2], A. A. Almeida[2], J. R. O. Junior[2], M. F. Campos[3], **F. J. G. Landgraf**[1] *([1]Universidade de São Paulo, São Paulo, Brazil, [2]Aperam South American, Timoteo, Brazil, [3]University Fluminense Federal, Volta Redonda, Brazil)*

TuP-20

Magnetomechanical energy of FeSi alloys based on Ruderman-Kittel-Kasuya-Yosida exchange interaction

F. Martin[1], J. Taurines[1], L. Laurson[2], A. Belahcen[1] *([1]Aalto University, Aalto, Finland, [2]Tampere University, Tampere, Finland)*

TuP-21

Chemical resistance of inorganic-organic coating of electrical steel to water-based lubricants

E. M. M. Alves[1], C. C. Silveira[1], M. das G. M. M. César[2] *([1]Aperam South America, Timóteo, Brazil, [2]MGRMELO Consultoria Ltda, Timóteo, Brazil)*

TuP-22

Thermodynamical description for magneto-plastic coupling in electrical steel sheets

J. Taurines[1,2], **F. Martin**[1], P. Rasilo[2], A. Belahcen[1] *([1]Aalto University, Espoo, Finland, [2]Tampere University, Tampere, Finland)*

TuP-23

2µm-thick 6.5%Si-Fe cold rolled sheet

T. Uemura[1,2], J. Tanase[1], K. Fujisaki[1], K. Ishiyama[3], E. Tsuchida[2] *([1]Toyota Technological Institute, Nagoya, Japan, [2]Maruyoshi Kogyo Co., Kakamigahara, Japan, [3]RIEC Tohoku University, Sendai, Japan)*

TuP-24

Simultaneous Enhancement of Mechanical Hardness and Magnetic Softness of Permimphy Alloy via Accumulative Roll Bonding and Annealing

O. Dabou[1,2], T. Baudin[1], F. Brisset[1], T. Waeckerlé[3], Y. A. Betenda[3], A.-L. Helbert[1], D. Bradai[2] *([1]Université Paris-Saclay, Orsay, France, [2]Université des Sciences et de la Technologie Houari Boumediene, Alger, Algeria, [3]Research Center, Aperam Alloys,Imphy, France)*

TuP-25

Soft magnetic composite cores produced by spark plasma sintering from pseudo core-shell Ni-Fe alloy@$Mn_{0.5}Zn_{0.5}Fe_2O_4$ powders

I. Chicinaş, **T. F. Marinca**, L. Cotojman, B. V. Neamţu, F. Popa *(Technical University of Cluj-Napoca, Cluj-Napoca, Romania)*

TuP-26

Electrodeposition of Fe-Ni Soft Magnetic alloys

P. Priftis[1,2], S. Angelopoulos[1], A. Ktena3, E. Hristoforou[1] *([1]National Technical University Of Athens, Athens, Greece, [2]SOTIRIA Technology, Athens, Greece, [3]National & Kapodistrian University of Athens, Athens, Greece)*

TuP-27

Iron Loss Evaluation by Vector Magnetic Properties of Permendurs with Different Heat Treatment Conditions

N. Soda *(Ibaraki University, Hitachi, Japan)*

TuP-28

Compaction of nanocrystalline cores by spark plasma sintering

M. Thamm[1], I. Lindemann-Geipel[1], T. Hutsch[1], T. Weißgärber[1,2] *([1]Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Dresden, Germany, [2]Technische Universität Dresden, Dresden, Germany)*

TuP-29

Effect of magnetostriction on initial permeability of amorphous and nanocrystalline alloys

H. Huang[1], H. Tsukahara[2,3], A. Katod[5], K. Ono[2,3], K. Suzuki[1] *([1]Monash University, Melbourne, Australia, [2]KEK, Tsukuba, Japan, [3]Osaka University, Osaka, Japan, [4] Toyota Motor Corporation, Shizuka, Japan, [5] National Institute for Materials Science, Tsukuba, Japan)*

TuP-30

Stress Annealing Induced Anelastic Microstructural Changes in Co-based Amorphous Wires

S. Corodeanu, G. Ababei, M. Grigoraş, T.-A. Óvári, N. Lupu, **H. Chiriac** *(National Institute of Research and Development for Technical Physics, Iasi, Romania)*

TuP-31

Structure evolution of ultra-rapidly annealed $Fe_{75.3}Ni_{10}B_{14}Cu_{0.7}$ alloys

M. Kowalczyk[1], A. Kolano-Burian[2], A. Grabias[3], P. Błyskun[1], M. Gazińska[4], P. Zackiewicz[2], A. Wójcik[5], R. Chulist[5], W. Maziarz[5], T. Kulik[1] *([1]Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland, [2]Institute of Non-Ferrous Metals, Gliwice, Poland, [3]Lukasiewicz Research Network, Warsaw, Poland, [4]Wrocław University of Science and Technology, Wrocław, [5]Poland, Polish Academy of Sciences, Kraków, Poland)*

TuP-32

Thermal stability and magnetic properties of the nanocrystalline $(Fe_{64}Co_{21}B_{15})_{99}Cu_1$ high-Bs alloy at elevated temperatures

B. Kunca[1], J. Marcin[1], P. Švec[2], I. Škorvánek[1] *([1]Institute of Experimental Physics SAS, Košice, Slovakia,[2]Institute of Physics, Bratislava, Slovakia)*

TuP-33

Magnetic and Magnetotransport Properties of Thin FINEMET Soft Magnetic Wire Families

S. Corodeanu, C. Hlenschi, H. Chiriac, T.-A. Óvári, **N. Lupu** *(National Institute of Research and Development for Technical Physics, Iasi, Romania)*

TuP-34

Interacting Domain Walls in Soft Magnetic Amorphous Nanowires

S. Corodeanu, C. Hlenschi, C. Rotărescu, H. Chiriac, N. Lupu, **T.-A. Óvári***(National Institute of Research and Development for Technical Physics, Iasi, Romania)*

TuP-35

Ni3Fe/Cr nanocrystalline soft magnetic composite compacts obtained by mechanical milling and spark plasma sintering

F. Popa, T. F. Marinca, B. V. Neamţu, I. Chicinaş *(Technical University of Cluj-Napoca, Cluj-Napoca, Romania)*

TuP-36

Effect of metalloid additives on the effectiveness of ultra-rapid annealing in Fe-B based nanocrystalline alloys

Z. Tang[1], Ri. Parsons[1,2], K. Suzuki[1] *([1]Monash University, Clayton, Australia, [2]Kite Magnetics Pt., Notting Hill, Australia)*

TuP-37

High induction soft magnetic materials prepared by continuous ultra-rapid annealing method

P. Zackiewicz[1,2], M. Kowalczyk[1,3], M. Gazinska[4], L. Hawelek[1], A. Kolano-Burian[1] *([1]Institute of Non-ferrous Metals, Gliwice, Poland, [2]Silesian University of Technology, Gliwice, Poland, [3]Warsaw University of Technology, Warsaw, Poland, [4]Wroclaw University of Science and Technology, Wroclaw, Poland)*

TuP-38

Structural and Magnetic Properties of Nanocrystalline Fe-Zr-B Alloys Prepared by Ultra-Rapid Annealing

M. C. Zeybek[1], R. Parsons[1,2], K. Suzuki[1] *([1]Monash University, Clayton, Australia, [2]Kite Magnetics Pty., Notting Hill, Australia)*

TuP-39

Influences of Molding Pressure for Ultra-high Density Iron Dust Core

K. Yun *(Gifu University, Gifu, Japan)*

TuP-40

Impact of Magnetization State of FeCuNbSiB Nanocrystalline Materials During Thermal Aging

R. Saoudi[1], A. Lekdim[2], L. Morel[1], M. A. Raulet[1] *([1]Université Claude Bernard Lyon Villeurbanne, France, [2]LEM Tech, Saint Priest, France)*

TuP-41

Influence of nanocrystalline Fe-based powder particles size on the magnetic performance of soft magnetic composites for high frequency applications

P. Błyskun[1], M.Kowalczyk[1], G. Łukaszewicz[1], M. Nowicki[1], A. Kolano-Burian[2], P. Gazda[1], P. Nowak[1] *([1]Warsaw University of Technology, Warsaw, Poland, [2]Łukasiewicz Research Network, Gliwice, Poland)*

TuP-42

CoFeSiB/$BaTiO_3$ cold sintered fibres based soft magnetic composites

B. V. Neamțu, T. F. Marinca, F. Popa, M. Nasui, I. Chicinaș *(Technical University of Cluj-Napoca, Cluj-Napoca, Romania)*

TuP-43

Soft magnetic properties of FeNiCoAlX (X=Ta or Nb) High Entropy Alloys
G. Rivera[1], L. M. Moreno-Ramírez[1], A. Giri[2], Z. Turgut[3], **V. Franco**[1] *([1]University of Seville, Seville, Spain, [2]DEVCOM Army Research Laboratory, Adelphi, USA, [3]Air Force Research Laboratory, Dayton, USA)*

TuP-44

Soft magnetic composites with isolation layer prepared by sol-gel-method
I. Lindemann-Geipel[1], **C. Höhnel**[2], L. Giebeler[3], M. Thamm[1], T. Mix[1], T. Weißgärber[1,2] *([1]Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung IFAM, Dresden, Germany, [2]Technische Universität Dresden, Dresden, Germany, [3]Leibniz Institute for Solid State and Materials Research, Dresden, Germany)*

TuP-45

Preparation of Cold Sintered Fibre-Based Soft Magnetic Composites based on Amorphous Fibres Coated with ZnO
B. V. Neamțu, **T. F. Marinca**, F. Popa, M. Nasui, I. Chicinaș *(Technical University of Cluj-Napoca, Cluj-Napoca, Romania)*

TuP-46

Preparation and characterization of functional magnetic nanowires
M. Varga[1], L. Galdun[1], P. Diko[2], K. Saksl[3], R. Varga[1] *([1]P.J. Safarik University in Kosice, Kosice, Slovensko, [2]Institute of Experimental Physics, Kosice, Slovensko, [3]TUKE, Kosice, Slovakia)*

WEDNESDAY, SEPTEMBER 6

9:00 – 11:00 WO1

Chair: Jon Gutiérrez, Universidad Del Pais Vasco, Leioa, Spain

9:00 Wed01-01

Keynote lecture
“Cylindrical micro and nanowires”
M. Vazquez Villalabeitia *(Instituto de Ciencia de Materiales, CSIC, Madrid, Spain, Distinguished Lecturer 2023 of the IEEE Magnetics Society)*

9:40 Wed01-02

Properties of soft magnetic ($Fe_{0.7}Co_{0.3}$)2B-based precursors for permanent magnet composites
A. Musiał[1], Z. Śniadecki[1], A. Grabias[2], **B. Idzikowski**[1] *([1]Institute of Molecular Physics Polish Academy of Sciences, Poznań, Poland, [2]Institute of Microelectronics and Photonics, Warsaw, Poland)*

10:00 Wed01-03

Nanocrystalline $Fe_{73.5}Si_{15.5}B_7Nb_3Cu_1$ Ribbon with Inline Strain Annealing for Wireless Power Transfer

N. Ito, Y. Ogawa, K. Miyano, Y. Kuriyama *(Proterial, Ltd., Yasugi, Japan)*

10:20 Wed01-04

Magnetic properties of rapidly annealed cores of medium- and high-Bs-alloys

N. Plutta[1], F. Spieckermann[1], C. Polak[2], M. Marsilius[2], M. Zehetbauer[3], J. Eckert[1,4] *([1]Montanuniversität Leoben, Leoben, Austria, [2]Vacuumschmelze GmbH & Co. KG, Hanau, Germany, [3]University of Vienna, Wien, Austria, [4]Austrian Academy of Sciences, Leoben, Austria)*

10:40 Wed01-05

Gas-atomized amorphous iron-based powders for inductor applications

B. Skårman[1], I. Heikkiläb, H. Magnussonb, Z. Yea *([1]Höganäs AB, Höganäs, Sweden, [2]Swerim AB, Kista, Sweden)*

11:00 - 11:30 Coffee break

11:30 – 12:50 WO2

Chair: Victorino Franco, Sevilla University, Sevilla, Spain

11:30 Wed02-01

Improvement of magnetic softness in Ni-rich nanocrystalline Fe-Ni-Nb-B alloys via ultra-rapid annealing

I. Škorvánek[1], J. Marcin[1], B. Kunca[1], P. Švec[2] *([1]Institute of Experimental Physics, Kosice, Slovakia, [2]Institute of Physics, Bratislava, Slovakia)*

11:50 Wed02-02

Metal composite based on μ-metal and aluminium for low frequency magnetic shielding

K. Etse[1,2], T. Baudin[2], Anne-Laure Helbert[2], L. Prevond[2], X. Mininger[1] *([1]Sorbonne Université Gif-sur-Yvette, France, [2]Université Paris-Saclay, Orsay, France,)*

12:10 Wed02-04

Impact of GOES Grade Mixing on single-phase Core Iron Losses

O.-A. Dabaj[1], R. Corin[1], J.-P. Lecointe[1], C. Demian[1], J. Blaszkowski[2] *(University Artois Environnement, Bethune, France, [2]Thyssenkrupp Electrical Steel, Isbergues, France)*

12:30 - 14:00 Lunch

14:00 – 16:00 WO3

Chair: Kazushi Ishiyama, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

14:00 Wed03-01

Shielded-loop coil type permeameter to measure films and composite sheets up to 20 GHz

T. Nakamura[1], Y. Sato[1], A. Itagaki[1], Y. Miyazawab[2], **M. Yamaguchi**[2] *([1]Ryowa Electronics Inc., Sendai, Japan, [2]Tohoku University, Sendai, Japan)*

14:20 Wed03-02

Influence of high pressure torsion on the magnetic properties of two Fe-based metallic glasses

M. Antoni[1,2], F. Spieckermann[1], N. Plutta[1,3], P. Ramasamy[2], C. Polak[3], B. Kunca[4], I. Skorvanek[4], R. Pippan[2], **M.J. Zehetbauer**[5], J. Eckert[1,2] *([1]Montanuniversität Leoben, Leoben, Austria, [2]Austrian Academy of Sciences, Leoben, Austria, [3]Vacuumschmelze GmbH & Co KG (VAC), Hanau, Germany,* [4]Slovak Academy of Sciences, Košice, Slovakia, [5]University of Vienna, Wien, Austria)

14:40 Wed03-03

Coupled electromagnetic-thermal modelling of reduced critical earth electrical traction machines, based on temperature dependant ferromagnetic material measurement data

S. Jacobs, J. Rens *(ArcelorMittal, Zwijnaarde, Belgium)*

15:00 Wed03-04

Hysteretic Magnetic Filed Analysis with Second-Order Homogenization

T. Matsuo *(Kyoto University, Kyoto, Japan)*

15:20 Wed03-05

Smart nanocomposite $SrFe_{12}O_{19}$-a/g-Fe_2O_3 single layers with adaptive magnetic properties

M. Bohra, N. Singh, **D. Sahadot**, A. Bhardwaj, T. Jain *(Mahindra University, École Centrale School of Engineering (MEC), Hyderabad, India)*

15:40 Wed03-06

Magneto-elasto-plastic behaviour of low carbon steels

M. Domenjoud, **L. Daniel** *(GeePs, Gif-sur-Yvette, France)*

16:00 – 18:00 WP Poster session 2

Chair: Michal Janošek, Czech Technical University

WedP-01

High Temperature Power Loss Estimation for Mn-Zn Ferrite Cores
R. Elkhadrawy[1], J. Vesa[1], V. Tsakaloudi[2], P. Rasilo[1] *([1]Tampere University, Tampere, Finland, [2]Centre for Research and Technology Hellas CERTH, Thessaloniki, Greece)*

WedP-02

Spectrum Analysis of Magnetic Field Strength for Fault Diagnosis and Condition Monitoring of Magnetic Cores
H. Hamzehbahmani *(Durham University, Durham, United Kingdom)*

WedP-03

Influence of plastic shear strain on the magnetic behaviour of pure iron
Z. Maazaz, **O. de la Barriére**, O. Hubert *(ENS Paris-Saclay, Gif sur Yvette, France)*

WedP-04

Predictor-Corrector Scheme for Dynamic Hysteresis Model
T. Matsuo, Y. Kawamura, **M. Tobita** *(Kyoto University, Kyoto, Japan)*

WedP-05

Adaptation of Mayergoyz method for vectorization of the Loss Surface (LS) hysteresis model
L. Mikula[1,2], B. Ramdane[1], O. de la barriere[3], C. Appino[4], C. Valdivieso[2], A. Kedous-Lebouc[1], G. Meunier[1] *([1]Université Grenoble Alpes, Grenoble, France, [2]Altair Engineering France, Meylan, France, [3]Lab SATIE, Gif-sur-Yvette, France, [4]INRiM, Torino, Italy)*

WedP-06

Measurement and Modeling of Vector Magneto-Mechanical Coupling at high Mechanical Loads
B. Schauerte, N. Leuning, K. Hameyer *(Institute of electrical machines (IEM), Aachen, Germany)*

WedP-07

Integrated FORC approach for mixing and stabilising hysteresis calculations
A. Skarlatosa[1], **B. Ducharne**[2,3] *([1]Université Paris-Saclay, CEA, LIST, Palaiseau, France, [2]Laboratoire de Genie Electrique et Ferroelectricite, Villeurbanne, France, [3]Tohoku University, Sendai, Japan)*

WedP-08

Frequency dependence of energy loss due to magnetostriction
H. Tsukahara[1,2], H. Huang[3], K. Suzuki[3], A. Kato[4], K. Ono[1,2] *([1]Osaka University, Osaka, Japan, [2]High Energy Accelerator Research Organization, Tsukuba, Japan, [3]Monash University, Clayton, Australia,* [4]Toyota Motor Corporation, Shizuoka, Japan)

WedP-09

Hall Sensors for Magnetization Loop Determination in Thin Films
T. Damatopoulou[1], J. Petrou[1], S. Aggelopoulos[1], A. Ktena[2], E. Hristoforou[1] *([1]National TU of Athens, Athens, Greece, [2]National Kapodistrian University of Athens, Athens, Greece)*

WedP-10

Sample position determination method for direct H-Field measurement
C. Dobler, D. Wockinger, G. Goldbeck, G. Bramerdorfer *(Johannes Kepler University Linz, Linz, Austria)*

WedP-11

Calibration of a magnetic flux density standard utilizing the Earth's field vector
D. Gouws[1], M. Janošek[2], E. Saunderson[1] *([1]South African National Space Agency, Hermanus, South Africa, [2]Czech Technical University in Prague, Prague, Czechia)*

WedP-12

Multi-Hall Sensor for Anisotropic Residual Stress Monitoring in Steels
P. Pattakos[1], S. Aggelopoulos[1], A. Ktena[2], **E. Hristoforou**[1] *([1]National Technical University of Athens, Athens, Greece, [2]National Kapodistrian University of Athens, Athens, Greece)*

WedP-13

Non-destructive Tensile Strength Evaluation of Automotive Steels by Magnetic Sensors
R. Koyanagi, Y. Tsuchida *(Oita University, Oita, Japan)*

WedP-14

Magneto-optical analysis of magnetic domains and walls under varying field on GOES processed with pulsed lasers
O. Maloberti[1,2], P. Dassonvalle[1], M. Nesser[1], J. Dupuy[3], S. Panier[2], P. Dupont[1] *([1]UniLasalle Amiens, Amiens, France, [2]UPJV, Amiens, France, [3]MULTITEL a.s.b.l., Mons, Belgique)*

WedP-15

Methods of flux density waveform shape control
A. Platil *(Czech Technical University in Prague, Prague, Czechia)*

WedP-16

Interlaboratory comparison of two-dimensional magnetic measurements
C. Appino[1], N. Banu[1], C. Delauna[2], F. Sixdenier[2], Ch. Joubert[2], C. Ragusa[3],S. Huang[3,4], L. Solimene[3], O. de la Barriére[5], F. Fiorilloa *([1]Istituto Nazionale di Ricerca Metrologica, Torino, Italy, [2]Université Claude Bernard Lyon 1, Villeurbanne, France, [3]Politecnico di Torino, Torino, Italy, [4]Xi'an Jiaotong University, Xi'an, China. [5]Laboratory SATIE, Gif-sur-Yvette, France.)*

WedP-17

Comprehensive Study for Standardization of Motor Loss Distribution Measurement Using Thermographic Camera

H. Shimoji[1,2], T. Ikeda[1], T. Todaka[2], S. Aihara[3], K. Fujiwara[4] *([1]Oita Industrial Research Institute, Oita, Japan, [2]Oita University, Oita, Japan, [3]Brightec Co. Ltd., Oita Japan, [4]Doshisha University, Kyoto, Japan)*

WedP-18

Model-based Estimation of Electromagnetic Material Parameters for Ring Specimens

D. Wöckinger, C. Dobler, G. Goldbeck, G. Bramerdorfer *(Johannes Kepler University Linz, Linz, Austria)*

WedP-19

Effects of coils on accuracy of magnetic losses on low-loss toroidal cores in high-frequency region

K. Yamamoto[1], Y. Narita[2], K. Ishiyama[3] *([1]University of the Ryukyus, Okinawa, Japan, [2]Iwatsu Electric, Tokyo, Japan, [3]Tohoku University, Sendai, Japan)*

WedP-20

Reduction of Iron Loss in Stator Core by Secondary Current Heating Method and Its Holding Temperature

T. Yano, Y. Tsuchida *(Oita University, Oita, Japan)*

WedP-21

Non-linear effects on the dynamic magnetic response of Fe-based nanocrystalline cores

F. Zámborszky[1], **M. Varga**[2], L. Vajtai[2], B. Gyüre-Garami[2], F. Simon[2,3] *([1]Magnetec-Ungarn Kft., R&D Department, Gyöngyös, Hungary, [2]Budapest University of Technology and Economics, Budapest, Hungary, [3]Wigner Research Centre for Physics, Budapest, Hungary)*

WedP-22

Compact BH loop tracer for soft magnetic closed samples

V. Petrucha, L. Nejezchleb *(Czech technical University, Prague, Czechia)*

WedP-23

Determination of Ferrite Permanent Magnet Shape for IPMSM Considering Magnetization Process

K.–S. Kim *(Gyeongsang National university, Jinju, South Korea)*

WedP-24

Noise in multi-coil single core orthogonal fluxgate gradiometer

M. Butta, M. Dressler *(Faculty of Electrical Engineering, Czech Technical University in Prague, Prague, Czechia)*

WedP-25

Offset drift of orthogonal fluxgate correlates with the offset magnitude
M. Janošek, **M. Dressler**, M. Butta *(Czech Technical University in Prague, Prague, Czechia)*

WedP-26

Orthogonal fluxgate sensitivity and offset spatial distribution
M. Dressler, M. Butta, M. Janošek *(Czech Technical University in Prague, Prague, Czechia)*

WedP-27

Ferrite and Nanoperm Based Gapped Core Differential Current Sensor
N. George, P. Ripka *(Czech Technical University, Prague, Czechia)*

WedP-28

Effect of temperature on magnetoimpedance response in stress annealed VITROVAC 6025 ribbons
M. Jakubčin, I. *Škrovánek (Institute of Experimental Physisc, Slovak Academy of Sciences, Košice, Slovakia)*

WedP-29

Improved performance of geometrically modified magnetoelectric laminates
A. Lasheras[1], P. G. Saiz[1,2], J. M. Porro[2,3], I. Quintana[4], C. Polak[5], A. C. Lopes[1,3] *(University of the Basque Country, Leioa, Spain, [2]BCMaterials, Leioa, Spain, [3]IKERBASQUE, Bilbao, Spain, [4]Basque Research and Technology Alliance (BRTA), Eibar, Spain, [5]Vacuumschmelze GmbH & Co. KG, Hanau, Germany.)*

WedP-30

Fluxgate sensor with printed winding
Z. Pliva[1], L. Petržílka[1], D. Hrakova[2], A. Laposa[2], P. Ripka[2] *([1]Technical university of Liberec, Liberec, Czechia, [2]Czech Technical University in Prague, Prague, Czechia)*

WedP-31

Development of a high-sensitivity orthogonal fluxgate sensor
P. Priftis[1,2], S. Angelopoulos[1], A. Ktena[3], E. Hristoforou[1] *([1]National Technical University Of Athens, Athens, Greece, [2]SOTIRIA Technology, Athens, Greece, [3]National & Kapodistrian University of Athens, Evia, Greece)*

WedP-32

Microfluxgate Sensor with racetrack core
J. Maier[1], P. Ripka[1], P. Chen[2] , L. Y. Chan[2] *([1]Czech technical University, Prague, Czechia, [2]National Taiwan University of Science and Technology, Taipei, Taiwan)*

WedP-33

Magnetoelastic resonators functionalized with Metal Organic Frameworks for humidity detection

B. Sisniega[1], R. F. de Luis[2], **J. Gutiérrez**[1,2], A. García-Arribas[1,2] *([1]Universidad del País Vasco (UPV/EHU), Leioa, Spain, [2]BC Materials, Leioa, Spain)*

WedP-34

Study of the ability of MBN based NDT to distinguish high-performance martensitic steel grades

M. Dherbécourt[1,2], O. Messal[1], Z. Tang[1], A. Benabou[1], H. Qozam[2], F. Lefevre[2] *([1]University of Lille, Lille, France, [2]Vallourec One R&D Aulnoye, Aulnoye-Aymeries, France)*

WedP-35

Elastic stress dependency of non-grain-oriented electrical steel assessed with non-destructive magnetic testing

S. Zhanga[2], **B. Ducharne**[1,2], G. Sebald[2], S. Takeda[2], T. Uchimoto[2] *([1]INSA Lyon, France, [2]Tohoku University, Sendai, Japan)*

WedP-36

Hysteresis cycle measurements with the magnetic needle probe method

P. Fagana[2], M.Domenjoud[1,2], **L. Daniel**[1,2] *([1]Universite Paris-Saclay, Gif-sur-Yvette, France, [2]Sorbonne Universite, Paris, France)*

WedP-37

Analytical investigation in 3MA linear and non-linear eddy current methods

Y. Gabi, K. Jacob, B. Wolter, Ch. Conrad, K. Szielasko *(Fraunhofer institute for non destructive testing IZFP, Saarbrucken, Germany)*

WedP-38

Self-calibrating stress measurement system based on multidirectional Barkhausen noise measurements

M. Chmielewski, L. Piotrowskia *(Gdańsk University of Technology, Gdańsk, Poland)*

WedP-39

Comparative study on eddy current sensors with regard to hot-dip galvanized steel coating thicknesses' inline measurement applicability

M. Koll[1], D. Wockinger[1], C. Dobler[1], G. Goldbeck[1], G. Bramerdorfer[1], S. Schuster[2], S. Scheiblhofer[2], N. Gstottenbauer[2], J. Reisinger[2] *([1]Johannes Kepler Universität, Linz, Austria, [2]voestalpine Stahl GmbH, Linz, Austria)*

WedP-40

An Eddy Current Sensor for Estimation of Conductivity and Permeability of Magnetic Plates

M. Mirzaei, P. Ripka, V. Grim *(Czech Technical University, Prague, Czechia)*

WedP-41

Estimation of Iron Shaft Properties for Rotational Eddy Current Speed Sensor
M. Mirzaei, P. Ripka, V. Grim *(Czech Technical University, Prague, Czechia)*

WedP-42

Local Magnetic Characterization of Electromagnetic Pulse Treated Metal: an Inhomogeneous Measurement
L. Plantevin, M.Senyo, L. Morel, C. Joubert, T. Chaise, D. Nelias *(University Lyon, Villeurbanne, Francie)*

WedP-43

Magnetostriction of textured Fe-Ga alloy prepared by additive manufacturing
R. Huo, V. C. De Faria[1], E. Brodie, J. Karela, K. Suzukia *(Monash University, Melbourne, Australia)*

WedP-44

Laser printing parameters optimization for Fe-6.5wt%Si
B. Kocsis[1], M. Windisch[2], I. Mészáros[3], L. K. Varga[4] *([1]Széchenyis István University, Győr, Hungary, [2]Eötvös Lóránd University, Budapest, Hungary, [3]Budapest University of Technology and Economics, Budapest, Hungary, [4]Wigner Research Center for Physics Inst. for Solid State Physics and Optics, Budapest Hungary)*

WedP-45

Lightweighting magnetic shielding using the design freedom of additive manufacturing
T. Smith, P. Hobson, C. Morley, A. Davis, I. Maskery, M. Fromhol *(University of Nottingham, Nottingham, UK)*

WedP-46

CIM-like additive manufacturing and comparison of MnZn ferrite magnetic cores
G. Sqalli[1], V. Martin[2], U. Soupremanien[3], F. Gillon[1], D. Najjar[2], A. Benabou[1], J.-F. Witz[2], M. l Hescquet[1] *([1]L2EP, Lille, France, [2]LaMcube, Lille, France, [3]Université Grenoble Alpes, Grenoble, France)*

20:00 Social event

THURSDAY, SEPTEMBER 7

9:00 – 11:00 ThO1

Chair: Sigrid Jacobs, ArcelorMittal, Belgium

9:00 Th01-01

Keynote lecture
Energy loss under tensile and compressive stress in non-oriented Fe-Si sheets
E. Ferrara[1], C. Appino[1], O. de la Barrière[2], G. Barrera[1], A. Ferraiuolo[3], F. Fiorillo[1] ([1]Istituto Nazionale di Ricerca Metrologica – INRIM, Turin, Italy, [2]*Laboratory SATIE, Gif-sur-Yvette, France,* [3]*Marcegaglia Spa, Ravenna, Italy*

9:40 Th01-02

Noninvasive laminated magnetic core characterization
B. Ducharne, A. Solignac[2] *([1]Tohoku University, Sendai, Japan,* [2]*Université Paris-Saclay, Gif-sur-Yvette, France)*

10:00 Th01-03

Measurement methods for magnetic characterisation of stator cores
L. Mierczak[1], P.Klimczyk[1], S. Siebert[2] *([1]Brockhaus Polska, Czestochowa, Poland,* [2]Dr. Brockhaus Messtechnik GmbH and Co. KG, Lüdenscheid, Germany)

10:20 Th01-04

Waveform control for measurement magnetic properties under two-dimensional DC-biased magnetization
Y. Ozeki, K. Yuna *(Gifu University, Gifu, Japan)*

10:40 Th01-05

Direct heating method to reduce iron loss for laminated motor cores
Y. Tsuchida *(Oita University, Oita, Japan)*

11:00 - 11:30 Coffee break

11:30 – 12:50 ThO2

Fernando J.G. Landgraf, Universidade de Sao Paulo, Sao Paulo, Brazil

11:30 Th02-01

Validation of eCore concept through Advanced Epstein Frame Measurements
S. Mokkapaty[1], T. Fogelberg[2], M. Milone[1] *([1]SGB-SMIT Group, Regensburg, Germany,* [2]*Fogelberg Consulting AB, Ludvika, Sweden)*

11:50 Th02-02

Softening of barium hexaferrites by cation addition with improved radar absorbing properties

J. Calvo-de la Rosa, A. García-Santiago, J. M. Hernàndez, J. M. Lopez-Villegas, J. T. Palacios *(Universitat de Barcelona, Barcelona, Spain)*

12:10 Th02-03

Optimising current-carriers coupled to mumetal to advance quantum sensor applications

P. J. Hobson, A. Davis, T. X. Smith, C. Morley, M. Fromhold *(University of Nottingham, Nottingham, UK)*

12:30 Th02-04

Magnetostrictive strain monitoring in non-oriented Si-Fe steel sheets using a SAW resonator sensor

O. Marbouh[1], A. Mazzamurro[1], O. B. Matar[1], W.Bekir[2], D. Laloy[3], K. Ettihir[3], A.Tounzi[2], A. Benabou[2], A. Talbi[1] *([1]University Polytechnique Hauts-de-France, Lille, France, [2]University of lille, Villeneuve d'Ascq, France, [3]Jeumont Electric, Jeumont, France)*

12:50 - 14:00 Lunch

14:00 - 15:40 ThO3

Chair: Evangelos Hristoforou, National Technical University of Athens, Athens, Greece

14:00 Th03-01

Magnetic characterisation of planar specimens via inversion of non-destructive field measurements

A. Skarlatos[1], R. Miorelli[1], N. Poulakis[2] *([1]Université Paris-Saclay, CEA, LIST, Palaiseau, France, [2]University of Western Macedonia, Kozani, Greece)*

14:20 Th03-02

Stress related magnetic imaging of additively manufactured Fe-based metallic glass

J. Löfstrand[1], I. K. Goetz[1], J. J. Marattukalam[1], B. Hjorvarsson[1], M. Sahlberg[1], B. Skarman[2], P. E. Jonsson[1] *([1]Uppsala University, Uppsala, Sweden, [2]Hoganas AB, Hoganas, Sweden)*

14:40 Th03-03

Designing size-controlled cavities to reduce iron losses of 3D printed ferromagnetic parts: Modelling and experimental results

G. Croset, T. Baffie, G. Delette *(University Grenoble Alpes, Grenoble, France)*

15:00 Th03-04

Screen printing as method to produce electrical steel sheets

T. Mix[1], Z. Jin[1], K. Reuter[1], T. Studnitzky[1], I. Lindemann-Geipel[1], T. Weißgärber[1,2]
([1]Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Dresden, Germany, [2]Technische Universität Dresden, Dresden, Germany)

15:20 Th03-05

Experimental Measurements and Numerical Modelling of Additively Manufactured FeSi Cores

M. Stella[1], A. Faba[1], M. Quercio[2], V. Bertolini[1], F. R. Fulginei[2], A. Laudani[2], H. Tiismus[3], A. Kallaste[3], E. Cardelli[1] *([1]University of Perugia, Perugia, Italy, [2]University of Roma Tre, Rome, Italy, [3]Tallinn University of Technology, Tallin, Estonia)*

15:40 – 16:00 Poster Awards ceremony, Closing

16:00 – 18:00 Farewell party