WMM'18

Dresden, Germany
June 12th to 14th, 2018

PROGRAM
Conference Program

Monday, June 11th, 2018

4.00 - 6.00 pm registration at art´otel

Tuesday, June 12th, 2018

8.00 - 8.30 am registration at art´otel

Morning Session – Chairman A. Moses

8.30 – 9.00 am
R. Kawalla, IMF, TU Bergakademie Freiberg, Germany
Research & Development of Non-Oriented Electrical Steel at the Institute of Metal Forming Freiberg – Technologies for Optimized Properties

9.00 – 9.15 am
M. Grismajer, SAENA GmbH, Dresden, Germany
Electromobility competence in the Free State of Saxony

9.15 – 9.30 am
A. Stöcker, IMF, TU Bergakademie Freiberg, Germany
Joint research project: Low-loss FeSi sheet for energy-efficient electrical drives

9.30 – 10.00 am
S. Lee, Posco, Korea
New products and technologies for Non-Oriented Electrical Steels at POSCO

10.00 – 10.30 am Coffee Break

Morning Session – Chairman A. Schoppa

10.30 – 11.00 am
N. Volbers, VAC, Germany
Soft Magnetic Crystalline NiFe and CoFe Alloys – Status and New Developments

11.00 – 11.30 am
M. Villani, Aquilla University, Italy
High Performance Electrical Motors for Automotive Applications – Status and Future of Motors with Low Cost Permanent Magnets

11.30 – 12.00 am
S. Arai, Nippon Steel & Sumitomo Metal Corporation, Futtsu Japan
Recent Development of Grain-Oriented Electrical Steel for Low Noise Transformers

12.00 – 1.30 pm Lunch
Afternoon Session – Chairman G. Abbruzzese

1.30 – 2.00 pm
K. Krimpelstaetter, Primetal Austria
Solutions for Plant & Performance Improvement for Thin and Ultrathin High-Si Electrical Steel

2.00 – 2.15 pm
S. Melzer, Tata Steel, The Netherlands
In-Situ Real-Time Measurement of Primary Recrystallisation in Grain Oriented Electrical Steel Using High Temperature XRD

2.15 – 2.30 pm
E. Gallo, Nucor, U.S.
Recent Developments in the Production of High-Grade Semi-Processed Cold Rolled Motor Lamination Steels

2.30 – 3.00 pm
A. Dongyang, Shougang Group, China
Performance and Application Research of High-Strength Non-Oriented Silicon Steel for EV Produced by Shougang

3.00 – 3.30 pm Coffee Break

3.00 – 4.00 pm Poster Session

4.30 pm Departure to Freiberg

Wednesday, June 13th, 2018

Morning Session – Chairman S. Paolinelli

8.00 – 8.30 am
G. Jian, Shougang Group, China
Tendencies of grain oriented electrical steels in China

8.30 – 9.00 am
E. Hilinski, Tempel Steel, US
Annealing of Fully-Processed and Thin Non-oriented Electrical Steels – Another Form of Semi-Processed?

9.00 – 9.30 am
A. Schoppa, PMG Füssen, Germany
Soft Magnetic Powder Materials – Status of Development and Applications

9.30 – 10.00 am
V. Franco, University of Sevilla, Spain
Soft magnetic nanocrystalline materials and their application: Status and further developments

10.00 – 10.30 am Coffee Break
Morning Session – Chairman S. Sprague

10.30 – 11.00 am
K. Hameyer, RWTH Aachen University, Germany
High efficient electrical drive systems: Influence of power electronic on the magnetic circuit of electric motors

11.00 – 11.30 am
C. Brombacher, VAC Germany
Status and further developments of RE-magnets

11.30 – 11.45 am
L. Ferraris, Politecnico di Torino, Italy
NdFeB bonded magnets: Processes and applications

11.45 – 12.00 am
E. Theisen, Metglas Inc., U.S.
Development of new amorphous and nanocrystalline materials for use in energy-efficient devices

12.00 – 1.30 pm Lunch

Afternoon Session – Chairman M. Villani

1.30 – 2.00 pm
S. Sprague, ProtoLam, LLC, US
Recent Progress in Optimum Choice of Electrical Steels for Electrical Machines and Components

2.00 – 2.30 pm
A. Bertuzzi, L.A.E., Italy
State of the Art transformer Cores and Windings & Innovative solutions for distribution transformers

2.30 – 2.45 pm
P. Klimczyk, Dr. Brockhaus Messtechnik GmbH, Lüdenscheid, Germany
In-line system for continuous segment evaluation of electrical steel after laser treatment

2.45 – 3.00 pm
M. F. de Campos, Federal Fluminense University, Brazil
Measurements of residual stresses in FeSi steels and their effect on the hysteresis losses

3.00 – 3.30 pm Coffee Break

Afternoon Session – Chairman B. Linzer

3.30 – 4.00 pm
S. Martines, Tenova, Italy
Innovative Solutions for Continuous Annealing and Treatment Lines for the Production of Electrical Steels

4.00 – 4.30 pm
S. Xie, BAOSTEEL, China
Evolutionary Direction of Non-Oriented Silicon Steel Materials Technology

4.30 – 6.00 pm Poster Session

7.00 pm Conference Dinner
Thursday, June 14th, 2018

Morning Session – Chairman P. Anderson

8.00 – 8.30 am
X. Liu, BAOSTEEL Europe Technical Service Center
Present situation and future of silicon steel material for new energy automobile

8.30 – 9.00 am
S. Jacobs, ArcelorMittal Global R&D, Zwijnaarde, Belgium
The Impact of iCARE® Electrical Steels for Electrified Traction on Machine Performance

9.00 – 9.30 am
B. Linzer, Primetal, Austria
Status, achievements and outlooks of endless steel strip production with a focus on electrical steels

9.30 – 9.45 am
Y. He, CANMET, Canada
Evolution of Texture in Non-Oriented FeSi Steels

9.45 – 10.00 am
I. Petryshynets, Slovak Academy of Sciences, Kosice, Slovakia
The development of high-strength NO electro-technical steel with composite microstructure

10.00 – 10.30 am Coffee Break

Morning Session – Chairman E. Hilinski

10.30 – 10.45 am
S. Fortunati, CSM, Italy
Influence of Chemical Composition and Processing on the Grain Growth Kinetics of Electrical Steels

10.45 – 11.00 am
J. Schneider, IMF, TU Bergakademie Freiberg, Germany
Evolution of Texture at Final Annealing by Recrystallization and Grain Growth in Non-Oriented Ferritic FeSi

11.00 – 11.30 am
G. Abbruzzese, CSM, Italy
Metallurgical model of the high temperature coil annealing in GOES production

11.30 – 12.00 am
F. Landgraf, IPT, Brazil
Lower losses in electrical steels at kHz frequency by plastic deformation and recovery

12.00 – 1.30 pm Lunch
Afternoon Session – Chairman S. Fortunati

1.30 – 2.00 pm
A. Moses, Cardiff University, Wales
Quantification of additional losses in rotating machine cores

2.00 – 2.30 pm
A. Stadler, Hochschule Coburg, Germany
The Role of Soft Magnetic Materials for Improved Power Transmission in High Power Applications

2.30 – 3.00 pm
B. Bacroix, CNRS - National Center for Scientific Research, France
Stored Energy at Cold Deformation – Characterization and Prediction

3.00 – 3.15 pm
U. Prahl, IMF, TU Bergakademie Freiberg, Germany
Towards integrated material and process modelling and simulation of electrical FeSi steel sheet production

3.15 – 3.30 pm
P. Anderson and A. Schoppa
Resume of the poster session

Posters

Poster 1  D. S. C. Amorim, Aperam, Brazil
The effect of the Manganese content on the final texture and magnetic induction of the 2.0%Si Non-oriented silicon steel produced by Steckel finishing mill

Poster 2  G. Bavendiek, IEM, RWTH Aachen University, Germany
Magnetization models for hard magnetic material

Poster 3  E. Cardelli, University of Perugia, Italy
Energy Losses in Non-Oriented Silicon Steels for E-Mobility

Poster 4  E. Cardelli, University of Perugia, Italy
Non-Invasive Testing of Crystal Grain Orientation for Electrical Steels with Goss Texture

Poster 5  M. G. M. M. Cesar, MGRMELO, Brazil
Effect of pH2O/pH2 ratio in the final annealing on secondary recrystallization and coating properties of 3% Si steel

Poster 6  G.-M. Chen, China Steel Corporation, Republic of China (Taiwan)
The effect of core material properties on torque and motor efficiency of drone/quadcopter

Poster 7  G.-M. Chen, China Steel Corporation, Republic of China (Taiwan)
The effect of the punching clearance and interlocking shape on the magnetic properties of electrical steels
Poster 8  
**H. Choi, POSTECH GIFT, Republic of Korea**  
Effects of pre-deformation on edge cracks of non-oriented electrical steels during cold rolling

Poster 9  
**S. Cicalé, Rina Consulting, Italy**  
Metallurgical Role of the Hot rolled strip annealing, in the framework of GO electrical steel production through nitriding

Poster 10  
**J. R. de Oliveira Júnior, Aperam, Brazil**  
Development of high grades non-grain oriented silicon steel with improved mechanical properties for high frequency applications

Poster 11  
**A. Ducamp, Elkem ASA, Norway**  
Innovative Si alloys for making of electrical steel

Poster 12  
**D. Goll, Aalen University, Germany**  
Quantification of structural details of electrical steel and influence of annealing unit „Low-loss FeSi sheet for energy-efficient electrical drives”

Poster 13  
**M. Heller, IMM, RWTH Aachen University, Germany**  
Coupled cold rolling and heat treatment simulations to predict the microstructure and texture evolution on non-oriented electrical steels  
Part of research unit „Low-loss FeSi sheet for energy-efficient electrical drives”

Poster 14  
**R. Hiergeist, Magnet-Physik Dr. Steingroever GmbH, Germany**  
A Comparison of Two Different Magnetic Loss Models for Soft Ferromagnetic Materials in AC Magnetic Fields

Poster 15  
**L. Jun, China Iron and Steel Research Institute Group, China**  
Effect of reduction of cold-rolling on textures of primary recrystallization annealing of grain-oriented silicon steel without inhibitor

Poster 16  
**Y. Kanto, Nippon Steel & Sumitomo Metal Corporation, Japan**  
Combined Experimental / Numerical Modelling of Dynamic Flux Distributions and Losses in a Transformer Core

Poster 17  
**R. Kessler, ABB, Switzerland**  
Net-Shape Nd-Fe-B Permanent Magnets Produced by Spark Plasma Sintering – Opportunities & Challenges Compared to Traditionally Sintered Magnets

Poster 18  
**M. Kitzberger, Johannes Kepler University Linz, Austria**  
Magnetic characterisation of non grain oriented silicon iron using a new 2D-magnetizer with digital feedback control

Poster 19  
**W. Lenarz, SGL Carbon GmbH, Germany**  
New Graphite Material Sigrafine® BDM Plus for sleeves in NGO furnaces

Poster 20  
**N. Leuning, IEM, RWTH Aachen University, Germany**  
Most appropriate soft magnetic material choice considering structural material parameters for electrical machines  
Part of research unit „Low-loss FeSi sheet for energy-efficient electrical drives”
Poster 21
B. Meary, Bekaert Solaronics, France
Compact, efficient non-contact and cost effective drying solutions for the GO/NGO Electrical Steel production

Poster 22
V. Milyutin, Institute of Metal Physics, Russia
Effect of high magnetic field on the primary recrystallization texture in soft magnetic alloys with different easy magnetization directions

Poster 23
J. Na, POSTECH GIFT, Republic of Korea
Final thickness reduction, bulk contents of sulfur and aluminum, development of cube + Goss texture and magnetic properties in Fe-3.1wt.%Si-0.1wt.%Mn steels

Poster 24
D. Schuller, Aalen University, Germany
Realization of novel soft magnetic structures and components by additive manufacturing

Poster 25
G. Shilyashki, EMCE, Vienna University of Technology, Austria
Local Distribution of Strain in the Interior of a Multi-Package Transformer Core

Poster 26
A. Stöcker, IMF, TU Bergakademie Freiberg, Germany
Hot strip annealing of ferritic Fe-2.4wt.% Si for improving magnetic properties

Poster 27
P.-L. Sun, National Sun Yat-sen University, Taiwan
Investigation of the cold-rolled and annealed through-thickness textures and microstructures in a 1.24% Si electrical steel

Poster 28
N. Trnka, Chemnitz University of Technology, Germany
Compensation of frequency-dependent errors in current measurements

Poster 29
L. Wang, Maanshan Iron & Steel Co., China
Effect of Annealing Process on High Frequency Magnetic Properties and Texture of Non-oriented Electrical Steel Containing 3.1%Si

Poster 30
Y. Wang, Wuhan University of Science and Technology, China
Effect of a Hot Band Annealing on the Evolution of Microstructure as well as Texture at Cold Rolling and Final Annealing of Ferritic FeSi

Poster 31
H. A. Weiss, Technical University of Munich, Germany
Impact of rolling and annealing on blanking related residual stress in non-oriented electrical steels

Poster 32
D. Wöckinger, Johannes Kepler University Linz, Austria
A novel modeling approach of the effective permeability for magnetic composites

Poster 33
P. Yang, University of Science and Technology Beijing, China
Recent study on the control of microstructure and texture in low graded non-oriented electrical steels by phase transformation

Poster 34
Y. Zaizen, JFE Steel Corporation, Japan
Evaluation of Stress Distribution Due to Shearing in Non-Oriented Electrical Steel by using Synchrotron Radiation
## Exhibitors

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<td>Metglas, Inc</td>
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