

ICBM16

16th International Conference on
Barkhausen Noise and Micromagnetic Testing

September 21 - 24, 2026
Dortmund, Germany



Conference Program

Organizers

tu dortmund
university

wpt materials test
engineering

TU Dortmund University
Chair of Materials Test Engineering
Baroper Straße 303
44227 Dortmund, Germany
www.wpt-info.de

tu | concept.

TU concept GmbH
August-Schmidt-Straße 4
44227 Dortmund, Germany
www.tu-concept.com

Exhibitors

 **stresstech**

Stresstech GmbH
Konnewiese 18
56477 Rennerod, Germany
www.stresstech.com

Q A S S

QASS GmbH
Schoellinger Feld 28
58300 Wetter (Ruhr), Germany
www.qass.net

Publishing and media partner

 **NDT***net*

NDT.net GmbH & Co. KG
Am Heckenberg 69
56727 Mayen, Germany
www.ndt.net

Conference Locations

CT-Building

Emil-Figge-Straße 68,
44227 Dortmund



[Google-Maps](#)

September 21

Monday

Welcome event



Campus-Treff

Vogelpothsweg 120,
44227 Dortmund

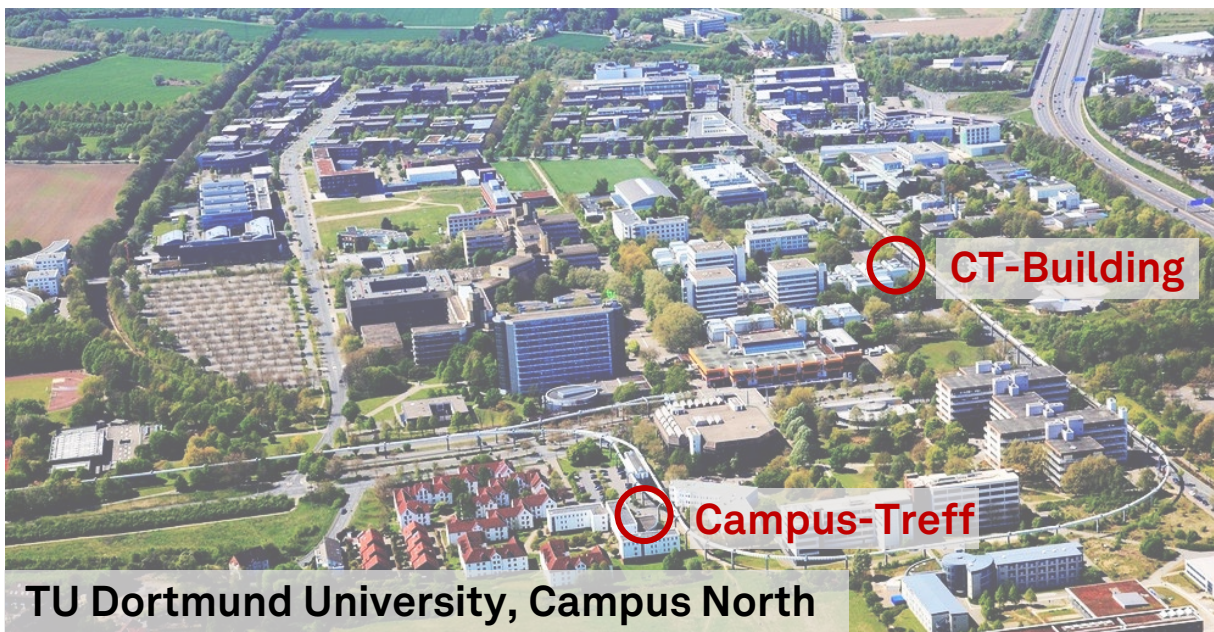


[Google-Maps](#)

September 22 - 24

Tuesday to Thursday

Conference days



Conference Program

September 21, Monday: Reception and welcome event (Location: CT-Building)

From 16:00	Opening
18:00	Music performance by part of TU Dortmund University Orchestra
18:30	Buffet
20:00	End of welcome event

September 22, Tuesday: Conference Day 1 (Location: Campus-Treff)

08:30 – 09:00	Registration
09:00 – 09:30	Welcome and Introduction
09:30 – 10:10	Keynote: Evolution of Barkhausen noise monitoring in grinding processes Prof. Bernhard Karpuschewski Leibniz-Institute for Materials Engineering-IWT, Bremen, Germany
10:10 – 10:35	Strategies for reliable detection of grinding burn on carburized gears in industrial production Epp, J. ^{1,2} ; Jedamski, R. ¹ ; Hüsemann, T. ^{1,2} ¹ Leibniz-Institute for Materials Engineering-IWT, Bremen, Germany ² MAPEX, University of Bremen, Bremen, Germany
10:35 – 11:00	Full-surface inspection of grinding burn in wind turbine ring gears Kowollik, O.; Lüling, S. J.; Seuthe, U.; Wiebelitz, U.E. QASS GmbH, Wetter (Ruhr), Germany
11:00 – 11:20	Coffee break
11:20 – 11:45	Comparison of different plastic strains in ferrite and pearlite structures and their Barkhausen noise responses Santa-aho, S. ¹ ; Sorsa, A. ² ; Honkanen, M. ³ ; Laurson, L. ⁴ ; Isakov, M. ¹ ; Vippola, M. ^{1,2} ¹ Materials Science and Environmental Engineering, Tampere University, Tampere, Finland ² Control Engineering, University of Oulu, Oulu, Finland ³ Tampere Microscopy Center, Tampere University, Finland ⁴ Computational Physics Laboratory, Tampere University, Finland
11:45 – 12:10	Barkhausen noise in Fe, Ni and Co as a function of stress state and strain hardening Neslušán, M. ¹ ; Čapek, J. ² ; Minárik, P. ³ ; Čilliková, M. ¹ ¹ Faculty of Mechanical Engineering, University of Žilina, Slovakia ² Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Prague, Czech Republic ³ Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
12:10 – 12:35	Micromagnetic characterization of residual stresses in vacuum brazed tool steel joints Kanagarajah, H.; Daldrup, J.; Brinkmann, R.; Helwing, R.; Otto, J. L.; Walther, F. Chair of Materials Test Engineering (WPT), TU Dortmund University, Germany

September 22, Tuesday: Conference Day 1 (continuation)

12:35 – 13:35	Lunch break TU Dortmund University, Campus North, Campus-Treff
13:35 – 14:15	Keynote: Magneto-optical microscopy – Basics, developments, applications Prof. Rudolf Schaefer Leibniz Institute for Solid State and Materials Research (IFW) Dresden evico magnetics GmbH, Dresden, Germany
14:15 – 14:40	Detection of stress in soft magnetic iron based on the structure of magnetic domains using machine learning Hohs, D. ^{1,2} ; Deeg, P. ¹ ; Bernthaler, T. ^{1,2} ; Goll, D. ¹ ; Schneider, G. ¹ ¹ Materials Research Institute, Aalen University, Aalen, Germany ² Matworks GmbH, Aalen, Germany
14:40 – 15:05	Marker free component identification in cold forming based on magneto-optical fingerprints Jacob, K. ^{1,2} ; Gabi, Y. ^{1,2} ; Wolter, B. ² ; Böttger, D. ² ; Valeske, B. ^{1,2} ¹ Chair of Cognitive Sensor Systems, Saarland University, Saarbrücken, Germany ² Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany
15:05 – 15:30	Rapid high-resolution micromagnetic material property imaging and defect detection via magneto-optical sensing Lauck, L.; Zimmer, C.; Szielasko, K. Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany
15:30 – 16:00	Coffee break + Poster session
16:00 – 16:50	Discussion session: Standardization of Barkhausen noise and NDT
17:00 – 19:00	Social Program (Part 1): Dortmund city tour in a double-decker bus Pick up in Campus-Treff
19:00 – 21:00	Social Program (Part 2): Conference Dinner Hövels Hausbrauerei, Hoher Wall 5 - 7, 44137 Dortmund

September 23, Wednesday: Conference Day 2 (Location: Campus-Treff)

09:00 – 09:10	Welcome
09:10 – 09:50	Keynote: Barkhausen noise analysis: The long journey of a niche technology from qualified solution to industry benchmark Dr. Michael Maass Stresstech GmbH, Rennerod, Germany
09:50 – 10:15	Using Barkhausen noise to monitor hard milling process of heavy vehicle crankshafts Lundin, P. ¹ ; Roininen, R. ² ; Edenborg, D. ² ; Selin, M. ² ¹ Lundin Stress Service AB, Rönninge Sweden ² Scania CV AB, Södertälje, Sweden
10:15 – 10:40	AI-evaluation of Barkhausen data from grinding crankshafts Turesson, H. ¹ ; Persson, M. ¹ ; Lundin, P. ² ¹ Volvo Trucks Technology & Industrial Division, Skövde, Sweden ² Lundin Stress Service AB, Rönninge, Sweden
10:40 – 11:00	Coffee break
11:00 – 11:25	Monitoring of hydrogen-induced damage in AISI 4140 steel under fatigue loading using eddy current measurements von Pavel, M. ^{1,2} ; Höwer, M. ¹ ; G. Manke, G. ³ ; Donnerbauer, K. ¹ ; Pohl, M. ^{3,4} ; Walther, F. ¹ ¹ Chair of Materials Test Engineering (WPT), TU Dortmund University, Dortmund, Germany ² RIF, Institute for Research and Transfer e.V., Dortmund, Germany ³ Euro-Labor GmbH, Bochum, Germany ⁴ Chair for Material Testing, Ruhr-University Bochum, Bochum, Germany
11:25 – 11:50	In-process micromagnetic determination of hardness on rollers from hardened steel Jedamski, R.; Kamenskii, A.; Seuthe, U.; Striewisch, J. QASS GmbH, Wetter (Ruhr), Germany
11:50 – 12:15	A stochastic model linking first-order domain wall dynamics to measured Barkhausen noise Ducharme, B. ^{1,2} ; Yamazaki, T. ³ ; Tamaru, S. ⁴ ¹ ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Sendai, Japan ² Univ Lyon, INSA Lyon, Villeurbanne, France ³ Faculty of Engineering, Yokohama National University, Yokohama, Japan ⁴ Research Institute for Hybrid Functional Integration (HyFI-RI), National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan
12:15 – 13:45	Lunch break TU Dortmund University, Campus North, Restaurant Calla , Vogelpothsweg 85, 44227 Dortmund

September 23, Wednesday: Conference Day 2 (continuation)

13:45 – 14:25	Keynote: Numerical methods and machine learning for micro-magnetism and permanent magnet design Prof. Lukas Exl Wolfgang Pauli Institute, Wien, Austria Department of Mathematics, University of Vienna, Wien, Austria
14:25 – 14:50	Micromagnetic simulation of Barkhausen noise origin: Effects of microstructure and sensor size Haavisto, V. ¹ ; Santa-aho, S. ² ; Kaappa, S. ¹ ; Honkanen, M. ³ ; Vippola, M. ^{2,3} ; Laurson, L. ¹ ¹ Computational Physics Laboratory, Tampere University, Tampere, Finland ² Materials Science and Environmental Engineering, Tampere University, Tampere, Finland ³ Tampere Microscopy Center, Tampere University, Tampere, Finland
14:50 – 15:15	Incremental permeability modelling in 3MA hybrid prototype Gabi, Y. ^{1,2} ; Jacob, K. ³ ; Conrad, C. ² ; Wolter, B. ² ; Valeske, B. ^{1,2} ¹ Chair of Cognitive Sensor Systems, Saarland University, Saarbrücken, Germany ² Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany
15:15 – 15:40	Electromagnetic material characterization using machine learning Youssef, S.; Gopalan, A.; Rother, M.; Bauer, G.; Lentz, S.; Videcs, B. Rohmann GmbH, Frankenthal, Germany
15:40 – 16:10	Coffee break + Poster session
16:30 – 18:00	Laboratory visit of the Chair of Materials Test Engineering (WPT) TU Dortmund University, Campus South, Building MB III, Baroper Straße 303 Laboratories: - Metallography + SEM Microscopy - Computer Tomography + X-Ray Diffraction - Kerr Microscopy - Servohydraulic Fatigue - Hydrogen Fatigue - Bio Materials

September 24, Thursday: Conference Day 3 (Location: Campus-Treff)

09:00 – 09:10	Welcome
09:10 – 09:50	Keynote: The magnetic fingerprint of manufacturing: How processing history shapes soft magnetic material response Dr. Norman Sievers Zapp Precision Metals GmbH, Schwerte, Germany
09:50 – 10:15	Detecting mechanical stress in ferromagnetic materials using magnetic measurement techniques Fagan, P. ^{1,2} ; Domenjoud, M. ^{1,2} ; Daniel L. ^{1,2} ¹ Université Paris-Saclay, CentraleSupélec, CNRS, Laboratoire de Génie Électrique et Électronique de Paris, Gif-sur-Yvette, France ² Sorbonne Université, CNRS, Laboratoire de Génie Électrique et Électronique de Paris, Paris, France
10:15 – 10:40	Magnetic-based fatigue monitoring in accelerated lifetime prediction methods Ziman, J. A. ^{1,2} ; Raghuraman, S. R. ¹ ; Weber, F. ¹ ; Starke, P. ^{1,2} ¹ Department of Materials Science & Materials Testing (WWHK), University of Applied Sciences Kaiserslautern, Kaiserslautern, Germany; ² Faculty of Natural Sciences and Technology, Saarland University, Saarbrücken, Germany
10:40 – 11:00	Coffee break
11:00 – 11:25	Robot-assisted Barkhausen noise measurements for dense time-series monitoring of corrosion processes Helwing, R.; Walther, F. Chair of Materials Test Engineering (WPT), TU Dortmund University, Dortmund, Germany
11:25 – 11:50	Methods, interfaces and usage of QASS μmagnetic in research, development and industrial applications Kowollik, O.; Radek, C.; Seuthe, U.; Wiebelitz, U.E. QASS GmbH, Wetter (Ruhr), Germany
11:50 – 12:15	Using Barkhausen noise analysis for industrial evaluation of surface integrity of peened steel parts Malec, J. ¹ ; Cervinka, F. ¹ ; Sandera, P. ² ¹ PCS, Department of Analytical Services, Zdar nad Sazavou, Czech Republic ² Mechanical Engineering, Technical University of Brno, Czech Republic
12:15 – 13:15	Lunch break TU Dortmund University, Campus North, Campus-Treff
13:15 – 13:40	In-situ real-time layer-wise ECT monitoring of additive manufacturing with process-synchronized triggering Aydogan, A.; Iskhakov, T.; Casperson, R.; Pelkner, M. Federal Institute for Materials Research and Testing (BAM), Berlin, Germany
13:40 – 14:05	Ferromagnetic and ferroelectric Barkhausen noise: comparison Ducharne, B. ^{1,2} ; Sebald, G. ¹ ¹ ElyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Sendai, Japan ² Univ Lyon, INSA Lyon, LGEF EA682, Villeurbanne, France
14:05 – 14:20	Closing and farewell

Posters

Minimizing losses in electrical steel via process optimization using 3MA micromagnetic NDT system

Gabi, Y.^{1,2}; Wegener, M.³; Wolter, B.²; Hübner, S.³; Valeske, B.^{1,2}; Behrens, B-A³

¹ Chair of Cognitive Sensor Systems, Saarland University, Saarbrücken, Germany

² Fraunhofer Institute for Nondestructive Testing IZFP, Saarbrücken, Germany

³ Leibniz University Hannover, Institute of Forming Technology and Machines IFUM, Garbsen, Germany

Dynamic Barkhausen noise measurements beyond RMS

Palosaari, M.R.J.¹; Savolainen, S.¹; Herrera-Greijus, J.¹; Mäkeläinen, T.J.J.¹; Send, S.²; Maass, M.²

¹ Stresstech Oy, Vaajakoski Finland

² Stresstech GmbH, Rennerod Germany

Effect of ultrasonic vibrations on Barkhausen noise in 1.4016 steel

Garstka T. A.

Czestochowa University of Technology, Faculty of Production Engineering and Materials Technology, Częstochowa, Poland

QASS μ magnetic – Measurement system, data analysis and examples from industrial applications

Jedamski, R.; Kamenskii, A.M.; Kowollik, O.; Kriegel, S.; Lüling S. J.; Radek, C.; Seuthe, U.; Radek, C.; Striewisch, J.; Wiebelitz, U.E.

QASS GmbH, Wetter (Ruhr), Germany

Grain boundaries characterization combining the magneto-optical Faraday effect and incremental permeability

Zhang, S.¹; Deffo, Y.A.T.²; Salgado, A.³; Ishibashi, T.⁴; Ducharne, B.^{3,5}; Uchimoto, T.^{3,6}

¹ School of Inf. Science and Tech., Beijing University of Technology, Beijing, China

² Faculty of Engineering and Technology, University of Buea, Buea, Cameroon

³ ELyTMax IRL3757, CNRS, Univ Lyon, INSA Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Sendai, Japan

⁴ Nagaoka University of Technology, Nagaoka, Japan

⁵ Univ Lyon, INSA Lyon, Villeurbanne, France

⁶ Institute of Fluid Science, Tohoku University, Sendai, Japan

Magnetic Barkhausen noise variation as a factor in electrical steel classification: Insights from deep learning-based analysis

Maciusowicz, M.; Psuj, G.

Center of Electromagnetic Fields Engineering and High-Frequency Techniques, Faculty of Electrical Engineering, West Pomeranian University of Technology, Szczecin, Poland

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Thank you very much for attending the **16th International Conference on Barkhausen Noise and Micromagnetic Testing.**

We hope that your stay in Dortmund and at TU Dortmund University will be productive and contribute to strengthening strategic contacts and professional networks between applied science, academic research, and industry.

On behalf of the ICBM16 Organizing Committee,

Prof. Dr.-Ing. Frank Walther
ICBM 16 Head of Organizing Institute

M. Sc. Julian Rozo Vasquez
ICBM 16 Lead Coordinator

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