



ICBM 12: PROGRAM

SUN, 24.9.17

HILTON DRESDEN, AN DER FRAUENKIRCHE 5, 01067 DRESDEN

18:30–21:00 Get together with Exhibition and Registration

MON, 25.9.17

FRAUNHOFER IKTS, MARIA-REICHE-STR. 2, 01109 DRESDEN

08:00–08:45 Transfer to Fraunhofer IKTS (Meeting point: Hilton Dresden)

Opening (Room Fraunhofer)

Chair: Susanne Hillmann

09:00–09:10 **Welcome** by the organizers and
Dr. Christian Wunderlich (Deputy Director of Fraunhofer IKTS)

09:10–09:40 Invited talk
Prof. Valeriy Vengrinovich: **Barkhausen Effect. From chaos to Order**

Session 1: Stress measurements using BN (Room Fraunhofer)

Chair: Susanne Hillmann

09:40–10:00 **Modelling the Effect of Stress on Magnetic Barkhausen Noise** (Thomas W. Krause, Royal Military College of Canada)

10:00–10:20 **Auto-calibrated Residual Stress Evaluation for Material Areas with Different Plastic Deformation** (Jürgen Schreiber, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany)

10:20–10:40 **Investigation of impact of autofrettage operation on a thick walled steel tube** (Ernur Pihava, Delphi Technical Center, Turkey)

10:40–11:00 **Evaluation of surface integrity properties of bearings after heat treatment using residual stress profiles and Barkhausen noise frequency and depth profiles** (Jiri Malec, PCS Ltd, Czech Republic)

11:00–11:20 **How to go from stress non destructive testing to measurement using Barkhausen Noise?** (Valeriy Vengrinovich, Belarus National Academy of Sciences)

11:20–12:50 Lunch



Session 2: Application for measurements of hardening depth (Room Fraunhofer)

Chair: Lasse Suominen

- 12:50–13:10 **Non destructive testing of surface characteristics after nitrocarburizing of three different steel grades** (Jonas Holmberg, Swerea IVF, Sweden)
- 13:10–13:30 **Penetration depth investigation of Barkhausen noise signal for case-hardened components** (Robert Tomkowski, KTH Royal Institute of Technology, Sweden)
- 13:30–13:50 **Case depth evaluation of nitrided components** (Aki Sorsa, University of Oulu, Finland)
- 13:50–14:10 **Preliminary Study: Barkhausen Noise Evaluation on the Hardening Depth of an Induction-hardened Carbon Steel** (Pui Lam Tam, Chalmers University of Technology, Sweden)
- 14:10–14:30 **Grinding burn detection independent of the depth of the hardened layer and quantitative estimation of the hardened depth in industrial components** (Aitor Lasasa, Ceit-IK4, Spain)
- 14:30–15:00 Coffee break

Session 3: New sensor development (Room Fraunhofer)

Chair: Dominik Dapprich

- 15:00–15:20 **Barkhausen noise Potcore sensor simulatios with Comsol** (Suvi Santaaho, Tampere University of Technology, Finland)
- 15:20–15:40 **Development of new sensors for Barkhausen Noise technique** (Ulana Cikalova, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany)
- 15:40–16:00 **Prediction of white layer in transmission components using Barkhausen Noise for quality evaluation** (Jorge Obdulio Ríos Nava, Sistemas Automotrices de México S.A. de C.V.)
- 16:00–16:45 Transfer to Old Town of Dresden (Hilton Dresden)
- 16:45–18:00 Individual time
- 18:00–19:30 **Guided city walk** (Meeting Point: Hilton Dresden)
- 19:30–22:30 **Conference dinner** (Restaurant Pulverturm)



TUE, 26.9.17

FRAUNHOFER IKTS, MARIA-REICHE-STR. 2, 01109 DRESDEN

08:00–08:45 Transfer to Fraunhofer IKTS (Meeting point: Hilton Dresden)

**Session 4: BN for bearing and bearing steel/New application and new parameters
(Room Fraunhofer)**

Chair: Lasse Suominen

- 09:00–09:20 **Grinding of case - hardened bearings** (Miroslav Neslušan, University of Žilina, Slovakia)
- 09:20–09:40 **Using the Sum of Effective Residual Stress (SERS) concept for determination of surface damage level and for experimental determination of BN penetration depth by different frequencies for bearing steel type 100Cr6** (Jiri Malec, PCS Ltd, Czech Republic)
- 9:40-10:00 **Micromagnetic Testing at Fraunhofer IZFP, Highlights and Experiences of more than 3 Decades of Research** (Bernd Wolter, Fraunhofer Institute for Nondestructive Testing IZFP, Germany)

10:00–10:30 Coffee break

**Session 5: New application and new parameters | chaired by Dominik Dapprich
(Room Fraunhofer)**

Chair: Dominik Dapprich

- 10:30–10:50 **Monitoring the directional variations of magnetic Barkhausen emission in ferritic steel sheets** (C. Hakan Gur, Middle East Technical University, Ankara, Turkey)
- 10:50–11:10 **Barkhausen noise response of fatigue tested duplex stainless steel** (Suvi Santa-aho, Tampere University of Technology, Finland)
- 11:10–11:30 **Investigation of The Effect of Different Machining Parameters on Surface Properties by Magnetic Barkhausen Noise** (Remzi Gömek, Dokuz Eylul University, Turkey)
- 11:30–11:50 **Investigation of surface integrity of deep hole drilling of a thick walled steel tube** (Ernur Kazancı, Delphi Technical Center Izmir, Turkey)

11:50–13:00 Lunch

Session 6: Panel session (Room Fraunhofer)

Chair: Susanne Hillmann

- 13:00–13:30 **Discussion: Development trends for BN industrial application**
- 13:30–13:45 **Closing remarks by the organizers**

13:45–14:30 Transfer to Old Town of Dresden (Hilton Dresden)