Lecture Invitation

TECHNISCHE UNIVERSITÄT DRESDEN

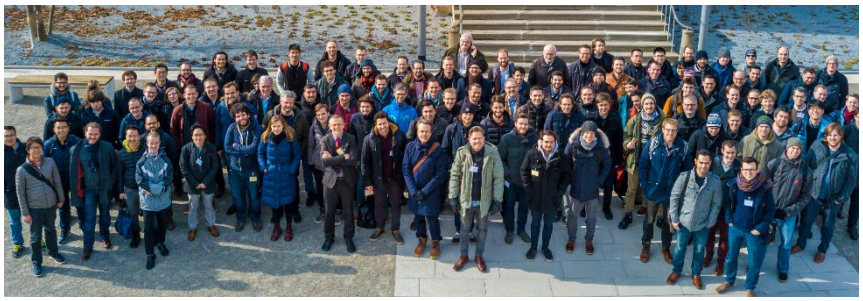
Sound Quality of Audio Systems

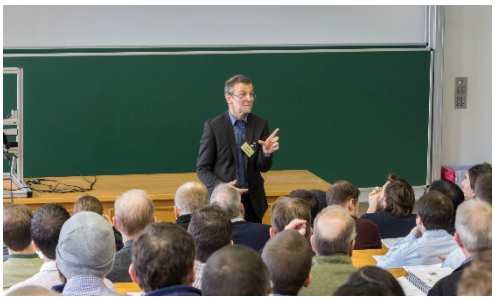
Modeling, Measurement & Control

March 09th -11th 2020 (Technical University Dresden, Germany)

The 2020 lecture on "Sound Quality of Audio Systems" presented by Prof. Dr. Wolfgang Klippel, honorary professor of the Institute of Acoustics and Speech Communication, will give you a deep under-standing on the latest measurement and diagnostic techniques used in telecommunication, automotive, multi-media and professional applications to design small, light and cost-effective loudspeakers.

The generation of signal distortion is modelled by linear, nonlinear and time-variant systems with lumped and distributed parameters. The course makes the relationship between symptoms and physical causes of the distortion more transparent. Practical sections will give each participant further opportunities for learning by doing.





Highly recommended for

- Students and teachers of the electro-acoustics
- Engineers of the Audio Industry active in Research & Development, Manufacturing, Quality Control

Key Topics

Benefit from the over 30 years of fundamental research by Prof. Dr. Klippel and apply this gained knowledge to your own field of work to improve the way you design and/ or manufacture your loudspeaker.

- Comprehensive Assessment of Audio Systems
- Physical Measurement and perceptional Evaluation
- Root Cause Analysis of Signal Distortion
- Designing Green Speakers - providing more output with higher efficiency and lower cost
- Adaptive, nonlinear control of Electro-acoustical Transducers

MORE INFORMATION

Date and Time:
09.-11.03.2020 (9am - 5pm)

Address:
Dresden University of Technology
Görges-Bau (Room: GÖR 226)
Helmholtzstr. 9
01069 Dresden, Germany

Language:
English

Registration Fee:
360 € (VAT incl.)
free of charge for students and university staff!

Contact:
Contact Jasmin for more information about agenda and your registration.

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Content

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Electro-acoustical Modelling:

- Fundamentals - transduction, vibration, radiation
- Abstraction - models with lumped and distributed parameters
- Small Signal Performance - linear approximation and transfer function
- Large Signal Performance - thermal dynamics and nonlinearities
- Time-varying properties - influence of climate and aging

Measurements and Analysis

- Persistent excitation - artificial and natural stimuli
- Monitored signals - electrical, mechanical and acoustical sensors
- Complex structures - digital and analogue components
- Sound field - measurements in the near and far field
- Interaction with the room - direct and diffuse sound part
- Measurement time - ultra-fast and long-term (power) testing
- Distortion analysis - linear and nonlinear components
- System identification - optimal fitting and parameter estimation
- Transformations - Fourier, wavelet and perceptual modelling
- Data compression - separation of unique and redundant information

Interpretation and Diagnostics

- Interpretation - measured symptoms and physical causes
- Perception - audibility and impact on perceived sound quality
- Evaluation - selection of optimal drive units for system design
- Specification - minimal but comprehensive set of data
- Tolerances - variation of parameters and influences

New Topics addressed this year:

- Designing loudspeaker system with typical program material (music)
- Product reliability, endurance testing, SPLmax
- Matching amplifier and speaker giving maximum sound output
- In-situ monitoring of speaker performance with music

House-Party at KLIPPEL GmbH

Do not miss our party on Monday night, 9th March, starting at 6.00 p.m. in the KLIPPEL office!

- Enjoy finger food, drinks and live music
- Use this great opportunity for further networking & knowledge exchange
- Visit our in-house exhibition & get to know our engineers
- Join the band for a spontaneous jam session (bring your instrument along!)
- Measure your speaker and interpret the results with KLIPPEL experts

Everyone is welcome. No prior sign-up required.