

AUDIO ENGINEERING SOCIETY

CALL for PAPERS AES 45TH CONFERENCE Applications of Time–Frequency Processing in Audio

Helsinki, Finland

Dates: March 1–4, 2012, **Location:** Helsinki
Chair: Ville Pulkki, 45th_chair@aes.org



Audio is commonly processed in the frequency domain. More precisely, input audio signals are divided into a number of frequency channels or bins that are processed separately, also taking into account the temporal information. The aim of such processing can be data compression, audio effecting, or enhancement of audio quality. A benefit of these processing methods is to mimic the structure of human hearing, which is based on a similar time–frequency analysis of signals arriving at the ear canals. There are many applications, such as audio compression techniques (mp3 and AAC), that take advantage of the resolution of the human auditory system. Time–frequency processing is also applied actively in sound analysis and synthesis, as well as in speech processing. An emerging field consists of multichannel and spatial applications utilizing time–frequency processing.

This conference will give a broad overview of the state-of-the-art applications of time–frequency processing in audio. It will also include a tutorial by **Bernd Edler** on the mathematics involved in such applications. All contributions to this conference will use time–frequency processing in some way, although the individual applications of the processing will differ. This diversity of applications will foster a cross-fertilisation of ideas, leading to improved techniques throughout the entire subject area. Invited talks will be given by three experts in the field: **Torsten Dau** will discuss the time–frequency resolution of human hearing in the context of hearing aids, **Karlheinz Brandenburg** will give an overview of different approaches using time–frequency processing in audio coding, and **Anssi Klapuri** will discuss the different time–frequency processing methods used for analysis and synthesis of audio.

The conference committee invites the submission of complete manuscripts (maximum 10 pages, 3000 words) by October 5, 2011 at www.aes.org/45th_authors. You can visit this website for more information and style templates anytime after August 15, 2011. We welcome contributions in all relevant areas, including but not limited to the topics listed below. The manuscript should detail the problem statement, work performed, methods employed, conclusions, and significance of the paper. Please follow the general guidelines found at <https://secure.aes.org/authors/guidelines/>. Acceptance of papers will be determined by the 45th Conference review committee based on full-paper review. Accepted authors will be notified by December 5, 2011. These authors could be required to revise their papers based on the reviews; if so, revised manuscripts will be due by January 5, 2011.

PROPOSED TOPICS FOR PAPERS (including, but not limited to)

Time–frequency representation of audio

- Filter banks
- Transfer-based processing
- Practical implementation

Time–frequency processing of audio

- Analysis
- Synthesis
- Effects

Applications

- Audio coding
- High-quality speech coding

Equalization

Echo cancellation

Spatial sound reproduction

Beamforming

Perception and psychoacoustics

Cochlear processing

Auditory models

Listening test results

Audio quality

Resolution issues

SCHEDULE FOR PAPERS

Please submit complete 4- to 10-page papers at www.aes.org/45th_authors by **2011 October 5**.
If you have any questions, contact papers chair Ville Sivonen at 45th_papers@aes.org.

Papers deadline: 2011 October 5

Acceptance emailed: 2012 December 5

Revised paper deadline: 2012 January 5

For updates on the conference go to www.aes.org/conferences/45