

Obituary

Armin Kohlrausch, 1953–2022



Armin Kohlrausch, a Fellow of the Acoustical Society of America, passed away unexpectedly on March 25, 2022, shortly after the meeting of the German Acoustical Society in Stuttgart (Germany). Armin studied acoustics in Goettingen, Germany, and received his PhD under the supervision of Manfred Schroeder on topics related to binaural hearing (Kohlrausch, 1985). In 1991, he joined the Institute for Perception Research at the Eindhoven University of Technology (UT/e; Eindhoven, The Netherlands) to continue his research on hearing, with a focus on modeling the effective signal processing of the auditory system. During that time, many of his influential publications on modeling of auditory modulation perception and binaural perception emerged (Dau et al., 1997). One key aspect of the modeling work was to model the limits of auditory perception by making a detailed description of the early stages of auditory signal processing that would represent the information reduction along the auditory pathway, followed by an optimal detector framework representing more central processing, an approach that allowed modeling a wide range of perceptual phenomena related to auditory masking and discrimination performance.

In 1999, Armin moved to the Philips Research Laboratories in Eindhoven while maintaining a part-time affiliation with the TU/e. Here he built up a new research group focusing much more on applied topics such as low-bitrate audio coding. The basic knowledge built up at the Institute for Perception Research turned out to be a very fruitful basis for contributing new methods to parametrically encode spatial parameters of audio signals in this way, allowing for much more efficient low-bitrate audio-encoding algorithms (Breebaart et al., 2005; Kohlrausch, 2007). This eventually led to contributions to the Moving Picture Experts Group (MPEG) surround standardization. In addition, his research focused on various applied topics such as music information retrieval and, later, soundscapes in intensive care units. Armin maintained a strong interest in basic research, and as part of his affiliation with

the TU/e, he contributed to our understanding of the factors that influence auditory-visual synchrony perception.

Armin's scientific curiosity extended far. Among his papers are contributions to the perception of room acoustics, the irrelevant speech effect, and the analysis of soundscapes in an intensive care unit and on music information retrieval and the history of psychoacoustics. One of his recent endeavors was the rediscovery of the work of Alvar Wilska from 1938 that was a pioneering work on spatial perception and included listening experiments that used a dummy head with accurate anthropomorphic features. Armin was awarded the Helmholtz Prize from the German Acoustical Association (DEGA) in 2017.

During his career, Armin contributed to many technical committees and was a devoted mentor to many young scientists in our field. As a PhD supervisor, he had a wonderful talent to give considerable space to his students in developing their ideas, although he also probed their work with his unsurpassed analytical skills to improve the scientific strength of their work. At the same time, Armin was a truly supportive and kind mentor, helping young inexperienced students to become confident and well-recognized scientists.

Selected Publications by Armin Kohlrausch

- Breebaart, J., Kohlrausch, A., van de Par, S., and Schuijers, E. (2005). Parametric coding of stereo audio. *EURASIP Journal on Applied Signal Processing* 9, 1305-1322.
- Dau, T., Kohlrausch, A., and Kollmeier, B. (1997). Modeling auditory processing of amplitude modulation. I. Detection and masking with narrow-band carriers. *The Journal of the Acoustical Society of America* 102(5), 2892-2905.
- Kohlrausch, A. (1985). Psychoacoustic studies of spectral aspects of binaural hearing. *The Journal of the Acoustical Society of America* 74, 1441.
- Kohlrausch, A. (2007). The perceptual basis for audio compression. *Physics Today* 60(6), 80-81.

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