

The localization of the sound sources: a new approach based on the divergence of the sound pressure level

Valentin Buzduga¹

Corresponding author's e-mail address: buzdugav@yahoo.com

ABSTRACT

This paper presents a new approach for explaining how the human hearing system is able to localize the sound sources. The theory of the head related transfer functions known from literature shows that the position of a sound source is determined from monaural and binaural cues, by using the time differences of arrival and the intensity differences of the sound at the two ears. The approach described in this paper uses the divergence of the sound pressure between certain points in the field of the acoustic source. The paper proves that sensing the difference of the sound pressure levels between four adequately chosen points in the field of a source allows determining the position of that source. The paper argues that certain elements in the structure of the human ear confirm the new approach for the localization of sound sources. The paper proposes further research for clarifying the topics in this domain.